United States Court of Appeals

for the Second Circuit

APPENDIX

UNITED STATES COURT OF APPEALS
FILED
DEC 22 1975
A. DANIEL FUSARO, CLERK
SECOND CIRCUIT

75-7514

IN THE

United States Court of Appeals

FOR THE SECOND CIRCUIT

FRANK A. QUINLAN,
Plaintiff-Appellee,

vs.

HILTI, INC.,
Defendant-Appellant.

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF VERMONT.

JOINT APPENDIX

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Witnesses for Plaintiff:

Clement Vallieres	42
Hans Huva	106
Richard W. McLay	154
Frank A. Quinlan	271

Witnesses for Defendant:

Roland Payne	302
Theodore Smith	310
John H. Couture	347
Robert Zink	359

Relevant Docket Entries.

CIVIL DOCKET
UNITED STATES DISTRICT COURT

Civ. 73-197
Jury demand date: 7-19-73 by Plaintiff
8-31-73 by Defendant

HOLDEN

. C. Form No. 106 Rev.

TITLE OF CASE	ATTORNEYS
FRANK A. QUINLAN vs. HILTI, INC.	For plaintiff: ~~Hoff Curtis Lisman Facey & Soule~~ ~~Philip H. Hoff~~, Esq. 192 College Street Burlington, Vermont For defendant: Philip D. Saxer, Esq. Burlington, Vt.

STATISTICAL RECORD	COSTS	DATE 1973	NAME OR RECEIPT NO.	REC.	DISB.
J.S. 5 mailed AUG 3 1973	Clerk	7-19	#21407	15 00	
		7-20	C. D. #3		15 00
				15 00	15 00
J.S. 6 mailed AUG 5 1975	Marshal				
Basis of Action: Tort	Docket fee				
	Witness fees				
Action arose at: 2	Depositions				

Relevant Docket Entries.

Civ. 73-197, Quinlan vs. Hilti, Inc.

DATE 1973	PROCEEDINGS	Date Order or Judgment Not
July 19	Filed Complaint.	1.
" "	Issued Summons.	
" 25	Filed Affidavit of compliance under 12 V.S.A 856.	2.
" 31	" Summons returned served.	3.
Aug. 31	" Defendant's answer.	4.
Nov. 5	" Deft's Request for Production of Documents.	5.
" "	" Deft's Interrogatories to Pltf.	6.
1974		
Apr.	At the Call of the Calendar before Judge Holden, it was	
"	ORDERED: Case continued.	
" 10	Filed Defendant's Motion to Compel.	7.
" 23	Filed Defendant's Memorandum of Law in support of Motion to Compel.	8.
May 17	Upon consideration of Deft.'s Motion to Compel, it is	
" "	ORDERED: Motion granted. Attorneys notified.	
June 14	Filed Plaintiff's Answers to Deft.'s Interrogatories.	9.
" 18	" Order Compelling Discovery. Mailed copy to attys.	10.
Aug. 19	Filed Pltf's Interrogatories to Deft.	11.
" 30	Filed Notice to Take Deposition of Theodore R. Smith.	12.
Sept. 19	Filed Notice of Deposition of William Weise.	13.
" "	Filed Notice of Deposition of Clement Vallieres.	14.
" 23	" Deft's Motion to Enforce & Memorandum.	15.
" 30	At the Call of the Calendar, it was	
" "	ORDERED: Case passed until issue joined as to additional third party defendant	
" "	ORDERED: all discovery to be complete by November 1, 1974. Case passed to after November 1, 1974. Attys. notified.	
Oct. 1	Filed Notice of Pretrial Conf., sch 10-17-74, 2:30 P.M., Rutland,VT.	16.
" 10	Filed Memorandum in support of Motion to Amend Answer.	17.
" "	" Motion to Amend Answer.	18.
" "	" Deft.'s Requests for Admission.	19.
" 17	Filed Defendant's Proposed Pre-trial Conference Order.	20.
" "	In Chambers before Judge Holden. Philip H. Hoff, Esq. and Alden Bryan, Esq., for Plaintiff. Philip D. Saxer, for Defendant.	
" "	Court and counsel discuss the various issues presented in the proposed pretrial conference orders submitted by counsel.	
" "	ORDERED: the defendant's motion to amend its Answer to plead the affirmative defense of assumption of risk is granted.	
" "	Filed Defendant's Amendment to Answer.	21.
" "	ORDERED: that Plaintiff will answer Interrogatory number 21 by October 29th and the Court regards that as a stipulation.	
" "	ORDERED: Time is enlarged for completion of Discovery to November 20, 1974.	
" "	Filed Plaintiff's Proposed Pretrial Order.	22.
" 21	" Deft's Answers to Interrogatories.	23.
1975		
Jan. 22	Filed Motion to Compel Answers to Interrogatories of Pltf. and supporting Memorandum.	24.
" "	" Pltfs. Further Answers to Interrogatories.	25.
Feb. 21	Filed Notice of Pretrial Conf. Sch. 3-14-75 at 11:00 A.M., Rutland.	26.
Mar. 14	In Chambers before Judge Holden. Alden Bryan, Esq., for Plaintiff. Philip D. Saxer, Esq., for Defendant.	
" "	Pretrial Conference.	
" "	It was ascertained by counsel that all discovery has been completed with the exception of two original depositions which Mr. Saxer will receive from Mr. Bryan.	

Relevant Docket Entries.

Civ. 73-197 Quinlan vs. Hilti, Inc.

D. C. 110 Rev. Civil Docket Continuation

DATE	PROCEEDINGS	Date Order Judgment N
1975		
Mar. 14	Court instructs counsel to furnish Trial Memorandums in the case before it goes to trial; all exhibits agreed upon by counsel to be marked in advance of trial; case to be set for trial after the Call of the Calendar. Court requests counsel to have pretrial memorandums to be available at the Call of the docket, if possible.	
Apr. 9	Filed Deposition of Dr. Richard W. McKay.	27.
" "	" " of Theodore R. Smith.	28.
" 28	" Memorandum.	29.
May 21	" Deposition of William Wiese.	30.
" "	" " " Clement Vallieres.	31.
une 12	Filed plaintiff's request for special assignment.	32.
July 7	Trial by Jury begun before Judge Holden. Philip Hoff, Esq., and Alden Bryan, Esq., for Plaintiff. Philip D. Saxer, Esq., for Defendant.	
" "	A Jury was impaneled by the Clerk.	
" "	ORDERED: that one alternate Juror be drawn and one alternate Juror was impaneled by the Clerk.	
" "	Court explains tc Jury the procedure to be followed in the presentation of the case.	
" "	Opening statements were made to the Jury by Mr. Hoff, followed by Mr. Saxer.	
" "	The following witnesses, sworn by Clerk, were examined for Plaintiff: Clement Vallieres and Hans Huva.	
" "	Filed Plaintiff's Memorandum of Law - Strict Liability.	33.
" "	Filed Plaintiff's Memorandum of Law - Strict Liability and Defective Condition.	34.
" "	Filed Plaintiff's Memorandum of Law - Negligent Misrepresentation.	35.
" "	Filed Plaintiff's Requests to Charge.	36.
" "	Filed Defendant's Requests to Charge.	37.
" 8	Trial resumed.	
" "	The following witnesses, sworn by Clerk, were examined for Plaintiff: Dr. James E. Simpson and Dr. Richard W. McLay.	
" 9	Trial resumed.	
" "	The following witnesses, sworn by Clerk, were examined for Plaintiff: Dr. Raymond Frank Kuhlmann, Frank A. Quinlan and Mrs. Sue Catherine Quinlan.	
" "	At 2:08 P.M. Plaintiff rests.	
" "	Jury excused. In open Court, Mr. Saxer moves to dismiss the Plaintiff's case for failure to prove a case of negligence, objected to by Mr. Bryan.	
" "	ORDERED: that motion to dismiss is denied at this stage.	
" "	In open Court, Jury present, the following witnesses, sworn by Clerk, were examined for Defendant: Roland Albert Payne and Theodore Ray Smith.	
" "	Court makes inquiry of witness Payne.	
" 10	Trial resumed.	
" "	The following witnesses, sworn by Clerk, were examined for Defendant: John H. Couture and Robert L. Zink.	
" "	At 2:03 P.M. Defendant rests. Plaintiff rests. Evidence closed.	
" "	Dr. Richard W. McLay was recalled and examined for Plaintiff in rebuttal.	
" "	Court makes inquiry of Dr. McLay.	
" "	At 3:07 P.M. Plaintiff rests in rebuttal, Defendant rests. Evidence closed.	

Relevant Docket Entries.

Civ. 73-197 Quinlan vs. Hilti, Inc.

DATE 1975	PROCEEDINGS	Date Order Judgment No
July 10	Jury excused. In open Court, Mr. Saxer renews his motion for dismissal, objected to by Mr. Bryan.	
" "	ORDERED: Motion to dismiss is denied or if it is in the context for a directed verdict, Court will deny that at this time.	
" "	In Chambers, attorneys present, Court informs counsel of the issues it intends to present in its Charge to the Jury.	
" 14	Trial resumed.	
" "	Opening arguments were made to the Jury by Mr. Hoff, followed by Mr. Saxer.	
" "	Rebuttal arguments were made to the Jury by Mr. Bryan.	
" "	ORDERED: that Robert W. Bourdeau be appointed Foreman of the Jury.	
" "	At 11:52 A.M. the Court commences Charge to the Jury, concluding at 1:00 P.M.	
" "	After Charge, Court further instructs Jury.	
" "	At 1:14 P.M. the Jury retire to deliberate the case.	
" "	At 4:35 P.M. the Jury come into Court for further instructions. After receiving same, they again retire to further deliberate the case.	
"	At 6:45 P.M. the Jury come into Court for further instructions. After receiving same, they again retire to further deliberate the case.	
"	At 7:10 P.M. the Jury come into Court and report a verdict for Plaintiff to recover from the Defendant $50,000.00 dollars, damages.	
"	Filed Interrogatories.	38.
"	Filed Verdict for Plaintiff.	39.
"	Filed Judgment on Jury Verdict -- It is Ordered and Adjudged that Judgment is hereby entered on the verdict of the Jury for the Plaintiff to recover from the Defendant Fifty Thousand Dollars ($50,000.00) damages. Mailed copy to attorneys.	40.
July 15	Filed Civil Subpoena returned served.	41.
" "	" Civil Subpoen a to Produce Document or Object returned served.	42.
" "	" Civil Subpoena returned served.	43.
" "	" Civil Subpoena to Produce Document or Object returned served.	44.
" "	" Civil Subpoena to Produce Document or Object returned served.	45.
" "	" Civil Subpoena to Produce Document or Object returned served.	46.
" "	" Civil Subpoena returned served.	47.
" 23	" Motion for Judgment Notwithstanding the Verdict; Motion for New Trial; and Memorandum in Support of Motions. (Deft's.)	48.
Aug. 7	In Court before Judge Holden. David Jenkins, Esq. for Pltf.; Philip D. Saxer, Esq. for Deft.	
" "	Hearing on Deft's Motion for Judgment notwithstanding the verdict.	
" "	Statements made to the Court by Mr. Saxer in support of said motion; followed by Mr. Jenkins in opposition.	
" "	Ordered: Motion denied. (Defts.)	
" 12	Filed Notice of Appeal. Mailed copy to Hoff, Curtis, Bryan, Quinn & Jenkins, Esqs., Philip D. Saxer, Esq., Court Reporter and Hon. A. Daniel Fusaro. (also Judge HOLDEN)	49.
" "	" Bond for Costs on Appeal. (Defts.)	50.
" "	" Motion for Stay. (Defts.)	51.
" "	Mailed Plan C & D to Philip D. Saxer, Esq.	
Sep. 17	" Record on Appeal to Clerk, U. S. Court of Appeals for the Second Circuit. Mailed copy to attys.	

(See next page)

Relevant Docket Entries.

Civ. 73-197 Quinlan vs. Hilti, Inc.

DATE 1975	PROCEEDINGS	
Oct. 14	Filed transcript of trial held July 7-14, 1975.	52.
" 21	" transcript of Hearing on Deft's Motion to Set Aside Judgment Notwithstanding Verdict held 8-7-75.	53.
" "	Mailed Supplemental Record on Appeal to Clerk, U. S. Court of Appeals for the Second Circuit, L.Y., N.Y. Attys. notified.	

Stipulation of Exhibits on Appeal.

UNITED STATES COURT OF APPEALS
SECOND CIRCUIT

FRANK A. QUINLAN, Plaintiff	X	
vs.	X	Temporary Appellate Docket No. 5079
HILTI, INC., Defendant	X	

STIPULATION OF EXHIBITS ON APPEAL

NOW COMES the attorney for the Defendant-Appellant and the attorneys for the Plaintiff-Appellee and hereby stipulate and agree that the record on appeal need contain only the following trial exhibits and hereby designate the same, together with the entire trial transcript, as the record on appeal:

1. Plaintiff's Exhibit 1 - Hilti fastener;
2. Plaintiff's Exhibit 2 - Hilti adaptor;
3. Plaintiff's Exhibit 9 - test figures;
4. Plaintiff's Exhibit 11 - purchase orders;
5. Plaintiff's Exhibit 15 - Hilti safety pamphlet;
6. Defendant's Exhibit A - project specifications;
7. Defendant's Exhibit B - hanger catalogue;
8. Defendant's Exhibit B-1 - fastener catalogue;
9. Defendant's Exhibit B-2 - hanger catalogue;
10. Defendant's Exhibit G - diagram of fastening system;
11. Defendant's Exhibit K - Hilti pamphlet;
12. Defendant's Exhibit L - Unistrut catalogue;
13. Defendant's Exhibit L-1 - Page 73 of Unistrut catalogue;

11. Defendant's Exhibit O - Hilti Kwik-Bolt literature.

Dated at Burlington, Vermont, this 16th day of September, 1975.

s/ Philip D. Saxer
Philip D. Saxer, Attorney for
the Defendant-Appellant

HOFF, CURTIS, BRYAN, QUINN
AND JENKINS

By. Alden Bryan
Alden Bryan, Attorneys for the
Plaintiff-Appellee

Joint Pre-Trial Conference Order.

UNITED STATES DISTRICT COURT

FOR THE

DISTRICT OF VERMONT

FRANK A. QUINLAN	)	
	)	CIVIL ACTION
VS	)	
	)	DOCKET NO. 73-197
HILTI, INC.	)	

JOINT PRE-TRIAL CONFERENCE ORDER

On the 14th day of March, 1975, pre-trial conference was held in this case at Rutland, Vermont before the Honorable James S. Holden, United States District Judge.

APPEARANCES

Counsel present and participating were Alden T. Bryan, Esq., of Hoff, Curtis, Bryan, Quinn & Jenkins, for the plaintiff and Philip D. Saxer, Esq., of Burlington, for the defendant.

NATURE OF CASE

This is an action involving products liability.

AMENDMENTS TO PLEADINGS

Plaintiff has no objection to defendant's proposal to add the assumption of the risk although plaintiff feels that there will be no evidence to justify any charge to the jury on this point.

STIPULATIONS

The parties hereto stipulate and agree that venue is properly laid in this District; that the United States District Court for the District of Vermont has jurisdiction of the parties hereto and the subject matter hereof; that all proper, necessary and indispensable parties are parties hereto.

DISCOVERY

Discovery completed.

ISSUES

Whether plaintiff and defendant can prove the contentions set forth below.

Joint Pre-Trial Conference Order.

PLAINTIFF'S CONTENTIONS

1. Defendant negligently failed to warn of potentially dangerous propensity on the part of the Hilti fastener to break when subjected to bending forces.

2. Defendant failed to design the 3/8 adapters sold to Renzi so as to adequately withstand anticipated bending forces, as applied to the fastener, all in violation of Section 402A of the Restatement.

3. Plaintiff was injured and otherwise suffered damages as the result of defendant's failure with respect to paragraphs 1 and 2 above.

DEFENDANT'S CONTENTIONS

1. Defendant contends that no act or omission of the defendant was the cause in fact or in proximate cause of the plaintiff's injuries.

2. Defendant contends that the plaintiff assumed the risk of injury.

3. Defendant contends that the plaintiff was contributorily negligent and that his negligence was greater than the negligence, if any, of the defendant.

4. Defendant contends that its fasteners and fastening equipment were not defective or unreasonably dangerous.

THEORY OF RECOVERY

See plaintiff's contentions.

CLAIMED INJURIES, LOSS AND/OR DAMAGES

Plaintiff has suffered permanent partial impairment of the left knee and leg resulting in total and permanent inability to resume work as an industrial electrician. He cannot work as a laborer. He has a limited educational background and has been unable to find work which he is physically able to handle.

Temporary, permanent and partial compensation benefits as well as medical and hospital costs have been paid by the insurance company in excess of $12,500. Hospital costs of approximately $2,500 have been paid plus doctor's fees.

PLAINTIFF'S WITNESSES

The names of witnesses plaintiff intends to call are:

Hans Huva
Frank Gohring
John Mansfield
Clement Vallieres
Theodore Smith
Dr. Charles Rust
Cletus Wallace
William Wise
Max Curow
Mr. and Mrs. Frank Quinlan
Dr. Raymond F. Kuhlmann
Dr. James Simpson

EXPERT WITNESSES

Plaintiff intends to call Professor Richard McLay as an expert witness.

DEFENDANT'S WITNESSES

The names and addresses of witnesses which defendant may call at trial:

1. Theodore Smith, Shady Lane, Colchester, Vermont.

2. Hans Huva, Airport Parkway, South Burlington, Vermont

3. Clement Vallieres, Island Pond, Vermont.

4. William Wiese, Burlington Square, Burlington, Vermont.

5. Dr. Charles Rust, Burlington, Vermont.

6. Dr. James Simpson, Burlington, Vermont.

7. Ms. Lillian Saunders, General Electric Personnel Department, Burlington, Vermont.

8. Dean Shortsleeves, International Business Machines Personnel Department, Essex Junction, Vermont.

9. Martin Martinau, Durgin and Browne, Inc., 30 Allen Road, South Burlington, Vermont.

10. Eugene Towne, Towne Plumbing, Heaing and Electrical. Milton, Vermont.

11. John Couture, South Burlington, Vermont.

See also Expert Witnesses below.

Defendant may call the following named expert witnesses:

1. Herbert Henkel, Hilti, Inc., Stamford, Connecticut.

2. Robert Zink, Esq., Hilti, Inc., Stamford, Connecticut.

3. Charles Megyar, Hilti, Inc., Stamford, Connecticut.

4. Ronald Brosseau, 17 Commerce Street, Williston, Vermont.

5. Roland Payne, Omega Electric, San Remo Drive, South Burlington Vermont.

The above experts may testify concerning:

1. Hilti fasteners and fastening tools and the applications thereof.

2. Acceptable fastening systems customarily employed in the industry.

3. The cause of the injuries alleged by the plaintiff.

In addition, Dr. Charles Rust may testify as a defense expert concerning the plaintiff's medical condition and prognosis.

EXHIBITS

JOINT EXHIBITS

1. Hilti 1/2-21 fasteners, multiple exhibits.

2. Hilti adapters 3/8-1/4, multiple exhibits.

3. 3/8 threaded rod, multiple exhibit.

4. Unistrut, multiple exhibit.

5. Sample I-Beam, multiple exhibit.

6. Hilti DX-100 tool, including cartridges.

7. Two 10 foot by 3 inches rigidsteel conduit

8. Assembled trapeze model, multiple exhibit.

PLAINTIFF'S EXHIBITS (contested or partially contested)

1. [illegible] figures, Hilti fasteners.

2. Catalogues of Hilti products.

3. Customer order forms, Hilti.

4. Complete copy of hospital records (not contested as to genuineness, photocopies permitted, issue - relevancy, no need to prove record.)

5. Medical bills, multiple exhibit, partially contested. Photocopy permitted.

6. Income tax returns, 1968-1974.

DEFENDANT'S EXHIBITS: (partially contested)

1. Project specifications, Section 168-2.

2. Hanger catalogues, multiple exhibits

3. Pipe hanger

4. "C" clamp

5. Hilti catalogue and bulletin.

Counsel have agreed that all joint exhibits are multiple exhibits. Plaintiff's or defendant's exhibits may be marked 1a, 1b, etc, to facilitate ease of designation at trial. Special exhibits will be marked prior to trial, or at least prior to use by counsel. Exhibits not disclosed or marked prior to trial are those for impeachment purposes. Exhibits overlooked inadvertently will be disclosed an appropriate period of time prior to use and marked as soon as practicable. Counsel believe they have disclosed all exhibits they intend to use.

Dated at Burlington, Vermont this 24th Day of April, 1975.

FRANK A. QUINLAN

By _____
Alden T. Bryan, Esq.
Hoff, Curtis, Bryan, Quinn & Jenkins

HILTI, INC.

By _____
Philip D. Saxer, Esq.

THE COURT: Ladies and gentlemen, the Court appoints Mr. BORDEAU to serve as your Foreman in this case.

This is a civil action for personal injuries arising out of an accident on the construction site at the University of Vermont, which occurred on July 20, 1970, in Burlington. The plaintiff, Frank A. QUINLAN, seeks to recover from the defendant, HILTI, Inc., for the injuries he sustained on the accident that then occurred.

Now, the plaintiff at this stage of the proceeding asserts a right to recover from the defendant on two theories of liability. The first is that the defendant was negligent in failing to exercise reasonable care to inform the plaintiff's employer of the fact that the fasteners and adapters sold by the defendant were dangerous to use when any bending force would be applied to the device.

The second claim is based on what is legally called product liability. The plaintiff contends that the defendant is liable on this aspect of the complaint for manufacturing a defectively dangerous product in that the fasteners as adapted were defective because they were sold without a warning of their inability to withstand any torque or bending forces.

Now, the defendant, HILTI, Inc., denies that it was negligent or that it is liable to the plaintiff under any theory of strict liability for the

manufacturer of its products, and by way of defense, the defendant contends that if it was negligent, the plaintiff was guilty of contributory negligence in a greater degree than the defendant. The defendant also contends that the plaintiff assumed the risks of the injuries which befell him.

Now, since the defendant, HILTI, INC., is a corporation, it must act through its agents and employees. As a corporation, it is responsible for the acts, omissions and declarations of its agents and employees while such agents and employees are acting within the scope of their employment. Therefore, in considering this case, you will bear in mind that the statements and acts of agents and representatives of the corporation are the words and acts of the corporation itself.

* * *

Now, some of the testimony introduced in this case has been what we term expert testimony, and I refer to the testimony of the master electricians, Mr. HUVA, and Mr. VALLIERES, and Mr. PAYNE; the mechanical engineers, Dr. McLAY, who was called by the plaintiff and Robert ZINK of the HILTI Co. who also is an engineer, and I also refer to the medical testimony that was given by Dr. SIMPSON and Dr. KUHLMANN.

Now, the opinioned evidence given by persons in the category of experts is to be weighed by you along with other evidence in the case. An expert witness is a person who by reason of his special study, training and experience in a given subject, has knowledge concerning that subject matter that is superior to that of people in general. The value of expert testimony or opinioned evidence given by the expert depends upon the honesty and the ability of the witness and upon the facts used by the expert as a basis for his opinion, and upon his opportunity for observation.

If the facts used by an expert witness as the basis for his opinion are proven and his qualifications are high and he's honest and impartial, his opinion may be of great value, while if his opinion is based on a limited opportunity for observation, his testimony may be of little value. But expert testimony, like that of the ordinary witness, is to be weighed by you along with all other testimony in the case and the weight of the expert testimony in this case is for you and for you alone to decide.

Now, some of the evidence that has developed during the trial is what is known as circumstantial evidence. Evidence may be established not merely by proof of facts attested to by an eye-witness, but also by inferences which follow with reasonable certainty or probability from proven facts. And as I have indicated, this case is no exception.

In dealing with circumstantial evidence, you must be careful to avoid speculation or conjecture, or guesswork, under the guise of relying on circumstantial evidence and draw only such inferences from other facts which are reasonable in view of all of the evidence presented.

* * *

As I stated at the outset, the plaintiff, QUINLAN, asserts a claim against the defendant based on the theory of strict products liability. This theory is that the defendant, HILTI, or this claim is that the defendant HILTI, sold its fasteners and adaptors in a defective condition that were unreasonably dangerous to the plaintiff.

Now, the law requires that when

products are sold that they be of merchantable quality and that they be of fair quality and reasonably safe for the normal use for which the product was manufactured and sold.

The reason for this rule is to promote high standards of quality and care in the mercantile business, and where the product sold is such that it's defectively manufactured, or if it's properly manufactured but has about it a capability of danger that can be anticipated and it would be dangerous if a warning wasn't given, then the product may be regarded as one of dangerous capability, and the law of strict liability applies in that instance for the benefit of all who are likely to be hurt by the use of such a product.

The liability which the law imposes in this regard does not necessarily arise from any agreement between the seller and the buyer; the law imposes this liability on the sale of a product by the original manufacturer, not only as to the purchaser but as to any natural person if it is reasonable to expect that such person may use or be affected by a dangerous defect in the product and who is injured thereby.

So then the applicable rule of law is that one who sells any product in a defective condition unreasonably dangerous to the user is subject to liability for physical harm caused by the product if the seller is in the business of selling such or manufacturing such a product and selling it, and it reaches the user without substantial change in the condition in which it was sold.

Now, this rule applies although the seller has exercised all possible care in the preparation and the sale of its product, and even though the user has not bought the product directly from the seller.

Now, the fasteners and adaptors that were used, that were involved in this case, were not in a defective condition if they were safe for normal handle and use. Now, if injury resulted from an abnormal use of the product or an abnormal method in which it was used, the defendant is not liable. However, if a person may use or be affected by any defect in the goods and if HILTI had reason to anticipate that danger might have resulted from a particular use, it was required to give adequate warning of the danger, and the product sold without such a warning was in a dangerous and defective condition.

Now, what is meant by unreasonably dangerous is that the article sold must be dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it with the ordinary knowledge common to the community as to its characteristics.

In order to prevent the product from being unreasonably dangerous, the seller may be required to give directions or warnings on the container or the package in which it is sold. Or give warning by verbal notice from its sales representative.

Now, there's no evidence in this case that the HILTI pin and adaptor were defective in the

sense that it was improperly manufactured. However, the use of a perfectly made product may be dangerous in the absence of special warnings concerning its normal character and properties. And one who deals in such fasteners and, or adaptors is expected to be familiar with its characteristics and if he has reason to believe that one who will use the product is not familiar with the characteristics and properties of the product, then the seller must use reasonable care to acquaint the user with the known facts.

So it is that where the product has a characteristic whose danger is not generally known, or if known, is not one which the consumer would reasonably expect to find in the product, the seller is required to give warning against it if he has knowledge of the characteristics and the danger that might flow from that.

In this case, the plaintiff claims that the inability of the fasteners and the adaptors; that is the power-activated stud and the three-eighth inch adaptor which were sold by the defendant, to withstand any bending force was a characteristic which the defendant had knowledge about, and therefore should have given a warning.

The plaintiff contends that HILTI's failure to warn meant that the fasteners were sold in an unreasonably dangerous condition beyond that contemplated by the ordinary construction firm.

The defendant on its side of the case contends that the plaintiff's employer put the

fasteners to an unreasonable use. This issue or these issues are for you to determine under the applicable law which I have stated.

I want to caution you that in this regard that to be aware that the product is defective or unreasonably dangerous in its character is not established by the mere fact that the fastener broke resulting in injury to the plaintiff. Proof of the occurrence of the injury or the fact that the fastener and its fastening device broke alone is not enough to establish liability on the part of the defendant.

* * *

To restate the first theory of the case, that is of product liability, in order for the plaintiff to recover on this theory, he must establish first that the defendant manufactured and sold to the plaintiff's employer fasteners which at the time they were sold, by reason of the nature of the product and the absence of any warning as to its inability to withstand bending force, constituted a defective condition unreasonably dangerous to the user.

Secondly, that the fasteners and adaptors reached the plaintiff without substantial change in the condition in which the defendant sold them, and thirdly, that the unreasonably dangerous condition was the proximate cause of the injury to the plaintiff.

If you find that the plaintiff has established each of these elements and you find that the defendant has failed to prove that the plaintiff assumed the risk of his injury, then you will return a verdict for the plaintiff, on the theory of product liability.

On the theory of product liability, if that is your verdict, you will so indicate on a special verdict form by way of interrogatories which will be provided for you. If you find the plaintiff is entitled to recover on this aspect of his claim, it will make it unnecessary for

you to consider the second claim, that is of negligence. And if you find the defendant liable on product liability, you may proceed directly to the question of damages.

However, if you find the plaintiff has failed to prove each of these elements as the Court has explained to you, or if you find that the plaintiff assumed the risk, your special verdict as to strict liability will be for the defendant. In that event, you must proceed to determine whether the defendant is liable on the plaintiff's claim of negligence.

And the question then is whether the defendant, HILTI, was negligent in supplying the fasteners and adaptors to the RENZI Company, the plaintiff's employer. The plaintiff alleges the defendant was negligent in this respect in that it had reason to know that the fasteners coupled with the adaptor were likely to be dangerous for the use for which it was supplied, and had no reason to believe that the purchaser would realize its dangerous condition and, therefore, the defendant failed to exercise reasonable care to inform the user, such as the plaintiff, of the facts which made the fastening devices, that is both the pin and the adaptor, dangerous, when used in any situation where bending forces were to be applied.

Negligence is the breach or ommision of a legal duty through neglect or carelessness. A person is negligent when he creates an unreasonable risk of harm to others by his failure to exercise that degree of care

which a reasonably prudent person or corporation would have exercised under like circumstances.

Foresight of harm lies at the foundation of negligence, thus foreseeable consequences are significant in determining whether the defendant exercised reasonable care for the plaintiff's safety and indeed, whether the plaintiff exercised reasonable care for his own safety.

The opportunity for knowledge when available by the exercise of reasonable care is the equivalent of knowledge itself, and knowledge essential to the duty need not be actual; it may be implied, imputed and constructed from the circumstances. And where knowledge is required, voluntary ignorance of the facts may constitute fault and will afford no protection from legal liability.

In other words, it wouldn't do for a person to say I didn't know of a fact which I should have known, or I couldn't foresee a danger which should have been foreseen.

Now, in searching and answering the question of whether the defendant exercised reasonable care for the plaintiff's safety, the existing circumstances and the dangers which relate to those circumstances are to be taken into account. And the greater the danger, the greater the care the law requires.

Now, one who supplies a product such as a fastening device and adaptor, as are involved here, through another person; that is through RENZI Corp. for

another use, is subject to liability to those whom the supplier should expect to use the product with the consent of the person who buys it, or to be endangered by its probable use, for physical harm caused by the use of the product, in the manner for which and by a person for whose use it is supplied, if the supplier has reason to know that the product is likely to be dangerous for the use for which it is supplied and has no reason to believe that those who use the product will realize its dangerous condition, and fails to exercise reasonable care to inform the prospective users of its dangerous condition or the facts which make it likely to become dangerous.

In applying this rule of law for the facts in this case, you must determine whether the plaintiff was a member of a class that HILTI should have expected to use its fasteners and adaptors, and this rule of law also means that HILTI, when it supplied the fastener and adaptors for Philip RENZI & Sons, to use for any purpose, was subject to liability for physical harm caused by HILTI's failure to exercise reasonable care to give those whom it might expect to use the product any information as to the character and condition of its fastening device, which it possessed and which it should recognize as necessary to enable the users to realize the danger of using in a particular way.

There are many products which even though perfect, are unsafe for the particular use for

which they are supplied unless their properties and capabilities are known to those who use them. And if the fasteners and adaptors were supplied to the plaintiff's employer and HILTI should have realized that the employer was unlikely to know of its properties and capabilities, and particularly that it might break upon bending force being applied, HILTI was required to exercise reasonable care to give the prospective users such information as it possessed in regard to this subject.

There are many articles which are safe if used for a limited use or if used with particular precautions. And if the appearance of the fastening equipment did not disclose its limited use condition, HILTI was under a duty to exercise reasonable care to disclose the condition of the fasteners to those who were to use it, and to warn of the danger that might result if it was used in a particular way. And to inform that it was fit only for certain limited uses, or if used with particular precautions.

HILTI was under the duty to exercise reasonable care to inform potential users of the fasteners, that is the powder-actuated pins and adaptor, of its particular characteristics only if HILTI had no reason to expect that those for whom the fastening devices were supplies would discover its condition and realize the danger involved.

Utilizing these rules of law which I have just discussed, is for you the jury to determine

whether the defendant, HILTI, INC., was negligent when it supplied the fasteners and adaptors to Philip RENZI & Son without warning.

* * *

Now, the first question under Part A relates entirely to the question of products liability. It doesn't relate to negligence. You will answer that - you will have to answer that question before proceeding to the question of negligence, but as the interrogatories indicate, if your answer is yes, proceed to determine the amount of damage the plaintiff has sustained.

If your answer is no, proceed to answer the interrogatories on the issue of negligence. And I will confine my instructions now principally to the special questions that relate to negligence.

* * *

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MR. SAXER: Amount in number nine; there are a couple of things contained. I believe it's fair for the jury to know that there is no duty to warn with regard to obvious dangers or non-dangers in the..(inaudible).

And ten, no duty to warn of the general possibility of danger, or more important, of all possible dangerous situations. I believe that fairly states the law.

With regard to the aspect of the charge on negligence, it was not nearly as clear to me that at the conclusion of that portion of the charge of foreseeability was as important as it was stated, stated in the law in products liability.

Number thirteen; I do not believe it appeared in the charge anywhere, but I think that is very relevant to the defense of this case.

MR. BRYAN: What's that in... (inaudible)..to?

MR. SAXER: No other complaints.

I just have a couple of notes off my - [illegible]onor several times referred to the phrase, "any bending forces". I believe that's what the defense was talking about here, the bending force in this application, not all bending positions in general. Maybe there has been some talk of that, but what's involved here was the bending that was done.

I'm also going to dispute the duplicity, the Charge, object for the record that the plaintiff must..(inaudible)..between his remedies against just for the second..(inaudible).

* * *

[illegible]
OFFICIAL FEDERAL REPORTER
P O BOX 143
RUTLAND VERMONT 05701

MR. SAXER: You said substantial factor a couple of times. I object only to the direct bearing.

Again, with regard to the, specifically to the charge on negligence, because I think it was there. I'm directing liable, failure to warn, still encompasses..(inaudible). We know there is something out there to warn out something that comes to our attention, and we have a charge on that. That goes right to charge number thirteen I believe.

In other words, there has to be a basis for us to warn under either theory.

In the assumption of risk, you used this one, factors told by the employer in a particular context of that because we don't think whether or not he was told by his employer to go forward and do this has got anything to do with it; and that is all I have.

(COUNSEL AND REPORTER RESUMED THEIR NORMAL SEATS)

THE COURT: Members of the jury,

in discussing the question about dangers, the danger that a manufacturer is required to warn about are those that he has reasonable opportunity to foresee. The mere possibility of danger or that a danger that might occur from some anticipated source, there's no requirement that he warn of danger. In other words, in all possible situations. But he's required to warn of danger which he has reason to believe might result from a particular use of his product.

In determining the question of foreseeability, it's important for you to take into consideration whether the defendant had received any evidence or had received any complaint or had learned of any matter that, matters that accident, that may have arisen from the use of the product where a bending force was applied. And I believe in saying, refer to bending force, I said to warn concerning any bending force. Of course the evidence in this case circumstances it, but your judgment will control, was that the bending force applied at the length of lever indicated in the fastening device was thirty five pounds of so many cycles, and the question is whether any reasonable bending force, not the very slight bending force that might be involved in some other situations.

* * *

THE CLERK: Mr. FOREMAN, has the jury reached a verdict?

THE FOREMAN: Yes, it has.

THE COURT: We need the interrogatories. Do you have the interrogatories with you?

THE FOREMAN: Oh, yes.

THE CLERK: Interrogatories. Part A, Products Liability. Is the defendant, HILTI, INC., liable to the plaintiff in the manufacture and sale of the HILTI fasteners and adaptors to the plaintiff's employer as the plaintiff has alleged in his complaint?

Answer, no.

Part B, Negligence. One; do you find that the defendant was negligent and that this negligence was a proximate cause of the alleged accident?

Answer, yes.

Two; do you find that the

plaintiff was negligent and that this negligence was a proximate cause of the alleged accident?

Answer, no.

Three; if your answers to both questions one and two are yes, what percentage of the total negligence that proximately caused the alleged accident do you attribute to, b. defendant? One hundred percent.

Four; what is the total amount of damages sustained by the plaintiff as a result of the accident? In answering this question, disregard any and all answers to previous questions.

Fifty thousand dollars.

Five; take the percentage and your answer to 3.b, defendant's percentage above, and write in here a figure equal to the total damage to plaintiff that you found in your answer to four above, multiplied by the percentage in 3.b.

Fifty thousand dollars.

Robert BOURDEAU, Foreman.

Verdict for Plaintiff. In this cause, the jury on their oath, say that the defendant is liable as the plaintiff in his complaint has alleged and find for the plaintiff to recover from the defendant fifty thousand dollars damages. Robert BOURDEAU, Foreman.

Mr. FOREMAN, is that the verdict of the jury?

THE FOREMAN: Yes, it is.

THE CLERK: So say you all, ladies and gentlemen?

THE JURY: We do.

* * *

JUDGMENT ON JURY VERDICT — CIV 21 (7-63)

United States District Court

FOR THE

DISTRICT OF VERMONT

CIVIL ACTION FILE NO. 73-197

FRANK A. QUINLAN

vs.

MILTI, INC.

JUDGMENT

This action came on for trial before the Court and a jury, Honorable James S. Holden Chief, United States District Judge, presiding, and the issues having been duly tried and the jury having duly rendered its verdict,

It is Ordered and Adjudged that Judgment is hereby entered on the verdict of the Jury for the Plaintiff to recover from the Defendant Fifty Thousand Dollars ($50,000.00) damages.

Dated at Brattleboro, in the District of Vermont, this 14th day of July, 19 75.

EDWARD J. TRUDELL
Clerk of Court

BY: KEITH L. SYLVESTER
Deputy Clerk

Endorsed: Filed July 14, 1975

KEITH L. SYLVESTER
Deputy Clerk

Motion for Judgment, etc.

UNITED STATES DISTRICT COURT

FOR THE

DISTRICT OF VERMONT

FRANK A. QUINLAN, Plaintiff	)	
vs.	)	Civil Action, File No. 73-197
HILTI, INC., Defendant	)	

MOTION FOR JUDGMENT NOTWITHSTANDING THE VERDICT
MOTION FOR NEW TRIAL
MEMORANDUM IN SUPPORT OF MOTIONS

NOW COMES the Defendant, and, by its attorney, Philip D. Saxer, Esq., hereby moves the Court for an Order as follows:

1. Granting the Defendant a Judgment notwithstanding the verdict for the reasons that the Plaintiff presented no admissible evidence which would sustain a Judgment on the grounds of negligence. Specifically, the Plaintiff fully failed to prove the existence of any reasonable standard of conduct and breach therefrom, and, further, the Plaintiff failed to prove by direct evidence that negligence in fact occurred.

2. Alternatively, in the event that the Motion hereinabove is denied, the Defendant moves for a new trial on the following grounds:

a. That the verdict was against the weight of the evidence;

b. That the Plaintiff's expert witness, Dr. McLay, was permitted to testify, over objection, as to his opinions and beliefs concerning the thought processes of Hans Huva with regard to the use of certain weight charts exhibited in evidence, all to the prejudice of the Defendant;

c. That the Court erred in charging the jury

concerning the Workmen's Compensation by advising the jury that the same was normally inadequate for a severe injury;

d. That the verdict was inconsistent and fatally [illegible].

MEMORANDUM IN SUPPORT OF MOTIONS

The Motion for Judgment Notwithstanding the Verdict is here made pursuant to F.R.C.P. 50. It follows a Motion made to direct a verdict in favor of the Defendant made at the close of the Plaintiff's case and renewed at the close of all evidence. Defendant continues to maintain that Plaintiff presented no direct evidence which would support his claim under either theory submitted to the jury.

The Defendant submits that the Motion to grant the Defendant a Judgment notwithstanding the verdict should be granted on the grounds that the Plaintiff failed to produce evidence which would sustain a verdict under the theory of negligence, or, for that matter, any other theory. The standard applied in review of this Motion has been stated by Professor Moore as follows:

> "It is now clear that a verdict will normally be directed with both the facts and inferences to be drawn from the facts point so strongly in favor of one party that the Court believes that reasonable men could not come to a different conclusion." 5A J. Moore, Federal Practice, Note 6 at 2320 (2d ed. 1969)

It is respectfully submitted that the Plaintiff has produced no facts which would support an inference that the Defendant was negligent. The Plaintiff sought to establish any such negligence solely through the testimony of Hans Huva and Dr. McLay. This testimony is devoid of facts or inferences which would support the claim for negligence. Mr. Huva clearly stated

during his examination that he was not misled in any way by the actions of the Defendant's sales representative and that he designed the system in question with knowledge of its frailties. His testimony further makes it clear that he did not rely on anything the Defendant communicated to him or omitted to communicate to him with regard to this system. Indeed the only apparent testimony in the Plaintiff's case which approaches the facts necessary to sustain a cause of action is the opinion offered by Dr. McLay, over objection, that Mr. Huva was misled by the figures regarding the weight and shear specifications.

The case was submitted to the jury on the theory that Defendant negligently failed to warn that the fasteners and adapters were dangerous in a bending situation, and, on the theory that said products were defective for failing to warn of their inability to withstand bending. (Charge, Page 2) The operative facts which would sustain either theory appear coextensive, however, curiously, the Jury rejected the product defect claim and returned a verdict for the Plaintiff only on the negligence theory.

It is submitted that, throughout both the trial and the Charge, the theories with regard to product defect and negligence were made substantially coextensive in that both involved only the notion of failure to warn as a necessary predicate to any recovery by Plaintiff. It is submitted that the verdict as rendered by the Jury is therefore inconsistent in that it held under one theory that failure to warn was unnecessary, and, under another that it was. It appears that these separate conclusions reached by the Jury are flatly inconsistent. It is submitted that this inconsistency renders the verdict void and necessitates a new trial. See Watkins v.

Myers, 95 A.2d 705

The Defendant further submits that the verdict was rendered against the weight of the evidence, and, that, therefore, an Order granting a new trial should issue. It is submitted here again that the record of the trial does not show evidence of negligence which would support a verdict for the Plaintiff. The record is devoid of evidence of standards of care, and, further devoid of any evidence suggesting any deviation from any possible applicable standard of care. Again, the Plaintiff sought to produce no evidence to support his claim of negligence save that produced through Hans Huva and Dr. McLay, and, the evidence provided by these witnesses does not substantiate the Plaintiff's claim. The direct evidence offered from all other witnesses in the case do not assist the Plaintiff. It is axiomatic that no portion of the Plaintiff's case may be founded on cross-examination.

Dated at Burlington, Vermont, this 23 day of July, 1975

Philip D. Saxer, Attorney
for the Defendant

AFFIDAVIT OF SERVICE

I hereby certify that on the 23 day of July, 1975, I forwarded a copy of the foregoing Motion for Judgment Notwithstanding the Verdict, Motion for New Trial and Memorandum in Support of Motions to Alden Bryan, Esq., at Hoff, Curtis, Bryan, Quinn and Jenkins, Esqs., 192 College Street, Burlington, Vermont, through the United States mail in a properly addressed and stamped envelope.

Before me, _____
Notary Public

41

Notice of Appeal

UNITED STATES DISTRICT COURT

FOR THE

DISTRICT OF VERMONT

U.S. DISTRICT COURT
DISTRICT OF VERMONT
FILED
AUG 12 2 55 PM '75
CLERK
DEPUTY CLERK

FRANK A. QUINLAN, Plaintiff	)	
vs.	)	Civil Action, File No. 73-197
HILTI, INC., Defendant	)	

NOTICE OF APPEAL

Notice is hereby given that HILTI, INC., Defendant in the above entitled matter, hereby appeals to the United States Court of Appeals for the Second Circuit from the following Orders and Judgments entered in the above matter:

1. From the Order denying the Defendant's Motion for a Directed Verdict entered at the close of the Plaintiff's case, entered on July 9, 1975;

2. From the Order denying the Defendant's Motion for Directed Verdict at the close of all evidence entered on July 14, 1975;

3. From the Final Judgment in the above entitled matter entered in this action on July 14, 1975;

4. From the Orders of the Court denying the Defendant's Motions for Judgment Notwithstanding the Verdict and For a New Trial entered on August 7, 1975.

Dated at Burlington, Vermont, this 12th day of August, 1975.

Philip D. Saxer
Attorney for the Defendant
HILTI, INC.
278 College Street
Burlington, Vermont

COPY

Q. Mr. Vallieres, why don't you pull that mike toward you a little bit so we can all hear you and speak good and loudly and slowly so that we will catch every word. Give us your name for the record, please.

A. Clement Vallieres.

Q. Where do you live, sir?

A. (No response).

Q. Where do you live, sir?

A. I live in Island Pond.

Q. How long have you lived there?

A. Sixteen year.

Q. I see. What is your type of business? What do you do?

A. Electrician.

Q. And how long have you been an electrician?

A. Thirty year next two months.

Q. Okay, now, there came a time back in 1970 that you were doing some work in the Burlington area?

A. Yes.

Q. Who were you working for at that time?

A. Renzi Electrician.

Q. What was the job that was involved?

A. That's a domitory UVM building.

Q. One of the university buildings?

A. Yes.

Q. University of Vermont buildings?

A. Yes.

Q. Under construction there?

A. Yes.
Q. What was your part in that construction? What were you to do?
A. Put the electrical conduit pipes.
Q. Did you have other work you did too for that job?
A. Yes.
Q. What was some of the other work you did?
A. Oh, put the wall box in the wall plugs, wall plugs in there, everything like that.
Q. Do you hold a license?
A. Yes.
Q. What is that license called?
A. Master Electrician.
Q. How long have you had that?
A. In the State here for ten years.
Q. I see. Before that, they were not required?
A. Before I got the license from Canada.
Q. I see, did you originally come from Canada?
A. Yes.
Q. And so you were working as an electrician then on the job, is that right?
A. Yes.
Q. Now this would be when? Can you remember what the date was? What month?
A. I think it's in July, on Monday.
Q. Of what year?
A. Been so long.

Q. 1970 sound about right?

A. Yah, about like that.

Q. Okay and how long did you work on that job? When did you go on the job? I don't mean just the specific day of the accident, but when did you go to the UVM job for RENZI and when did you get done?

A. I started the job in October and I got done in July, about couple of weeks after that accident.

Q. So you worked for about 8 months or so?

A. About that term.

Q. Okay and that was for your employer was RENZI, is that right?

A. Yes.

Q. Okay now, from time to time, did the union send up helpers to work?

A. Yes.

Q. You, I see and do you know what they are called?

A. (No response).

Q. Any particular name for them or do they call them helpers, or, -

A. Just helpers.

Q. I see and are you a union man?

A. Yes.

Q. And who was your union shop, where was it located?

A. In Burlington.

Q. Okay, did you get assigned by the union to go do the job and work on that job?

A. Yes.

Q. RENZI didn't come to you they went to the union and the union sent you?

A. Sent the union.

Q. All right, did there come a time when they also sent a Frank QUINLAN up to work on that job?

A. Yes.

Q. And do you recall when that was?

A. On Monday.

Q. During July?

A. During July on Monday, and I know it's Monday, I don't know the date.

Q. Would July 20 sound about right during that month?

A. Maybe.

Q. Maybe, as best as you can recall but you are not sure?

A. Yah, I'm not sure.

Q. What were the duties what were you supposed to do that day? What was your work?

A. I supposed the hanging the two inch "legion" pipe in the ceiling beam.

Q. Okay, will you describe what the, what you mean by steel beam, what was overhead that, just tell, you have to tell the jury so they know what went on there.

A. In that setting they got no setting, just the steel beam across the building- and on top of the beams you got the second floor of the dormitory with the cement floor.

(WITNESS HAS CANADIAN FRENCH ACCENT)

Q. So you looked up you could see steel beams going across the room and you could see cement on top of that?

A. Cement, that's right.

Q. All right, go ahead.

A. And somebody walking upstairs through, you know, at the same time and downstairs, first, - first floor.

Q. You were on what floor?

A. First floor and the base, base floor.

Q. Ground floor?

A. Ground floor.

Q. Is that where you were?

A. Yah, and what he, Buddy Walker is my foreman. He's just been on vacation, two weeks vacation that Monday morning and I see that fall off the ladder and he said you need to put the three inch pipe this morning.

Q. So that was your job this morning to put three inch pipe where?

A. In the steel beam.

Q. Okay now, you say Wally Walker was your immediate foreman, is that right?

A. Yes.

Q. He is the one you look to for supervision?

A. Yes.

Q. That is to tell you where to do the work that day?

A. Yah, he told me what he wanted and I do the job.

Q. You knew how to do the work but he had to lay out the work and tell you where it was to be done that day?

A. Yes.

MR. SAXER: Object to the leading form of the questions.

THE COURT: Yes, we'll allow the question.

MR. BRYAN: I am just trying to lay a foundation Your Honor.

Q. Now, who was the supervisor, if any, over Wally WALKER?

A. He's got the, at that time, he's got the General Foreman on top of him.

Q. Okay.

A. His name is Arthur BASHAW.

Q. And tell us a little bit about the order of supervision as it started on this job. You were the fellow putting up the conduit, there was Wally WALKER, who was your foreman, then there was a fellow over him. Tell us, the Jury and the Judge, a little bit how it started. Who was the over-all boss and how did it go on down?

A. In that morning I see the pipe on the ground, -

Q. Wait a minute, wait a minute, I'm asking you to describe who was, who were the people involved? I mean there was a Hans HUVA on the job too, wasn't there?

A. Yah, the superintendent on the job.

Q. Okay, tell us who these people were and what their responsibilities were?

A. First my foreman, Wally Walker, he should take the order from General Foreman, Arthur BASHAW.

Q. Okay.

Q. A. Then Arthur BASHAW, the General Foreman take the order from Hans HUVA.

Q. Who is Hans HUVA?

A. Superintendent on the job.

Q. Now, he would be the top man on the job?

A. He's top man for the, all the State for RENZI Electric.

Q. Anything RENZI had to do up in Vermont, Hans HUVA would be the boss?

A. That's right.

Q. RENZI is an out of state firm, is that correct?

A. Yes.

Q. Now under Hans HUVA then would be two men, one would be a, what do you call him, a General -

A. General Foreman.

Q. BASHAW?

A. BASHAW.

Q. Who is WALKER? He is what?

A. Just foreman.

Q. But he is assigned as to a specific area of the job rather than the over all job, right?

A. Right.

Q. Then there was you to do the, do what you were told by WALKER, Is that right?

A. Right.

Q. What did he tell you to do that morning?

A. Hang the pipe with the quarter inch pin in the steel beam.

Q. Now the pipe you are talking about is?
A. Three inch.
Q. Three inch, made out of steel?
A. Yes.
Q. Called what?
A. Rigid pipe.
Q. And it's conduit, is it?
A. Yes.
Q. What's the purpose of that?
A. (No response).
Q. Why is it up there in the first place?
A. (No response)
Q. Well, you and I both know it's up in the ceiling, you've got to tell the jury and the judge why did they put it up there? What's it for?
A. Put the wiring.
Q. Wiring for the building?
A. Yes.
Q. Is that where the wiring goes through to the different parts of the building?
A. Yes.
Q. Are there more than one size of conduit? I don't mean that particular morning, but generally, in buildings?
A. Yes.
Q. What are the different sizes?
A. I've got three inch, three and a half inch, two, four inch.

Q. All kinds of sizes, right?
A. Yes.
Q. And they are put up in all different kinds of a manners? Is that correct?
A. Yes.
Q. On this particular day you were told by Wally WALKER then, as I understand, to put up the three inch rigid pipe with pins?
A. Yes.
Q. Now, what were these pins?
A. Some is two inch, two and a half and that is the size of the pin is a quarter inch.
Q. And who, where do you get these pins from?
A. From WALKER.
Q. Where did he get them from?
MR. SAXER: Objection.
THE COURT: Yes, objection sustained.
Q. Well, were they provided to you on the job, is that correct?
A. Yes.
Q. And you were familiar with these pins?
A. No.
Q. I mean familiar, you knew what they were when you saw them?
A. Yes.
Q. Okay, what were they?
A. That is a few used the pin on the job.
Q. No, what were the pins?
A. (No response).

Q. HILTI pin, or -

A. HILTI.

Q. Were you familiar with that manufacturer?

A. For some job.

Q. Okay now how were these pins used, can you tell us a little bit about how they were used, that is, how do you install the pin?

A. With the gun that is a, called it a gun, Hilti guns.

Q. It's a Hilti gun?

A. Yes.

Q. I see, is there something you put into the gun to make it put the pin into the steel?

A. Yah, you put the cartridge in the gun, look like a .22 calibre, about the same size.

* * *

Q. Can you tell us that, what that is, Mr. Valliere?

A. That is the pin that goes through this steel beam, you shoot with the gun, Hilti gun.

Q. I see and it looks, the ones you were using that morning did they look like that?

A. Yes.

Q. Okay, these are the ones that were provided to you by Mr. WALKER, is that right?

A. Yes.

Q. That's what you know then as a quarter inch?

A. Yes.

Q. Hilti?

A. Yes.

Q. Fastener pin, right?

A. Yes.

Q. Now, I assume counsel have agreed in advance that may be received in evidence as Exhibit #1.

THE COURT: Plaintiff's #1 is received and you'd better have it marked right now.

MR. SAXER: I don't believe there is any connection with the first case, if you want to admit them all now.

THE COURT: We can have those marked as exhibits during the noon hour.

Q. We don't have one of the guns here yet but we will shortly. Could you just tell the jury, hold this up and just tell the jury briefly, what you do when you fire this into the steel?

A. You get your pin and in the gun, on top of the gun and you fire the guns and that pin goes through the steel, through here, to the thread, like that. And actually, you got about half inch in the seal beam to hold that pin.

Q. Yah and did you hold the gun and fire it into the beam, is that right?

A. Yes.

Q. The beams?

A. Yes.

Q. What portion of it sticks out of the beam when you are through firing it?

A. Just a half inch, you got the thread just about a half inch.

Q. Thank you. I show you #2 for identification and ask you what that is, sir?

A. That is a coupling.

Q. Did they also sometimes call them an adapter?

A. Yes.

Q. And was that one of the pieces of equipment supplied by Mr. WALKER that morning?

A. Yes.
Q. And what is the purpose for that?
A. You get quarter inch pins , you get quarter inch threads and the other end you've got three eighths threads but you put the bigger out the three-eights lugs for that pins.
Q. Then we offer #2.
THE COURT: Yes.
Mr. saxer: No objections.
THE COURT: Plaintiff's #2 is received.
Q. Now, Mr. Vallieres, I ask you are these the two pieces of Hilti equipment that is the fastening equipment that was provided to you by Mr. walker that morning?
A. Yes.
Q. Okay now, assuming for a moment that this has already been fired into a beam of some sort, what, how would those two go together? Would you just fasten those two together so that the jury can see? Hold it up so the Jury can see you do it?
A. (Doing so).
Q. MR. SAXER: If you want to pass them out, -
Q. I am holding this stick out the beam like that.
A. This comes down close to that, comes in here.
Q. And it would stick into the ceiling?
A. Yes.
Q. In a manner like that?
A. Yes.

Q. I show you #3 for identification and ask you what that is?

A. That is a three-eighths rod.

Q. Threaded rod?

A. Yes.

Q. Okay, was that provided to you or a rod of that type provided to you that morning to work with?

A. Yes.

Q. Who provided that to you?

A. Wally WALKER.

Q. This is not Hilti equipment though, is it?

A. No.

Q. Only fastening devices are these two?

A. Yes.

Q. Okay that had anything to do with Hilti?

A. Yes.

Q. Okay, I offer #3.

THE COURT: It may be received.,

Q. Now, Mr. Vallieres, would you show us please how #3 goes with #2, et cetera?

A. (Doing so).

Q. Okay, you have done that have you, sir?

a. (No response).

Q. You have done that, that's why I ask you to get everything on the record to ask you a foolish question like that.

A. Yes.

Q. That is how you end up to get them together like that?

A. Yes.

Q. Now I show you #4 and ask you what that is?

A. We call it unistrut.

Q. Unistrut?

A. Yes.

Q. Now was that type of material used on the job that day?

a. Yes.

Q. Again provided to you by Mr. WALKER?

A. Yes.

Q. Not a Hilti product however, right?

A. No.

* * *

Q. Okay, call it trial equipment. Okay now, would you show us, Mr. Vallieres, how the unistrut goes with the jack there?

A. (Doing so). You need the washer, you got no washer here.

Q. We don't have any washers. That gives you an idea of how it's held together?

A. Yes.

Q. And the only difference then you would have washers between the nuts and the unistrut?

A. Right.

Q. Okay now that, then if I am not mistaken, shows a portion of the system that you used that day?

A. Yes.

Q. It shows one fastener, one adapter or coupling, one rod and a couple of bolts, bolting it to the unistrut?

A. Yes.

Q. Mr. Vallieres I show you #8 for identification and ask you if you recognize that?

A. Yes, that is the sort of unit here, rods, the couplings and the beams.

Q. Okay and this is a sample piece of eye beam?

A. Yes.

Q. Now is this the sort of eye beam, I don't know whether it's a fact or not but a similar sort of thing that went across the overhead?

A. Yes, one like that.

* * *

Q. I'll hand it to you and these are the two rods, are these about the size that you used that morning?

A. Yes.

Q. And what would the, do you recall the length or did you have any specific length?

A. Oh, I got the length at least six, eight inches, something like that.

Q. Can, if we measure that, would that show you around 8 inches long?

A. Yes.

Q. Does that look about the size you used?

A. Yes.

Q. Does this come in the longer rods?

A. Yes, long rods and you cut the size you want.

Q. And that is some of the work you did, you cut them the size you want with the hack saw?

A. Yes.

Q. And these two adapters that are screwed on here, right?

A. Yes.

* * *

the beam overhead, how do you put the trapeze together?

A. Well you start to put the couplings first.

Q. Do you put it on this first or this first, or what?

A. No, the coupling first and the pins.

Q. You climb up the ladder?

A. Yes, and put the pins like that, you see?

Q. Uh huh.

A. They usually go on easy.

Q. They usually go on easy? Is that right?

A. Yes.

Q. Do you use a wrench to put them on or do you put them on hand-tight?

A. Like that. Hands.. Just with the wrench a little bit, not much.

Q. Okay then, what do you do?

A. After that you put your cross pins on.

Q. When, what do you do next, put both rods in?

A. Put both rods.

Q. Then you build yourself a trapeze, right?

A. Yes, bring them up like that, you need to bring the pipe right first and -

Q. Before you close it?

A. After you get your pipe on your shoulder on the step ladder, you turn that and you get your rod here first, just like that. You're going up to the step ladder with the pipe on your shoulder then you put your pipe in then after that you put on the , - still got some

pipe on the shoulder for hold and after you get your, no, - -

Q. You let it down, yes?

A. Yes, that is what I do, somebody else probably do it some other way.

Q. I take it two fellows are doing it?

A. Yes.

Q. One on one end and the other on the other end?

A. Yes.

Q. Are there various ways to hook these together? Do you ever take and put the adapter on this first and screw it up like that?

A. You don't make difference.

Q. You can do it either way?

a. Yes.

Q. Depending on which ever is easier?

A. Uh huh.

Q. Do you recall specifically which way you did it that morning?

A. I put the coupling first.

Q. You put the coupling first?

A. Sure.

Q. And so you then you put the rod in, is that right?

A. Yes.

Q. And as you described are you each on a ladder?

A. Yes.

Q. Okay now would you tell me where the, about how far apart

were the beams across, have you any idea?

A. Maybe eight feet. I'm not sure. I don't remember exactly, maybe 8 feet apart.

Q. And were they as far apart as a piece of the pipe?

A. No, not too long in the pipe.

Q. Not quite as long as the pipe, you don't think?

A. The space between the beams?

Q. Yes.

A. No.

Q. Okay, so how many, - how many did you have up at the time of the accident?

A. Two link.

Q. Two lengths?

A. Yes, twenty feet.

Q. How long is each length?

A. Ten feet, each one.

Q. How are these pipes connected together?

A. With the couplings.

* * *

Q. Okay now, assuming that there would be one of those hangers overhead, show me how you would put it in, just lift it up.

MR. SAXER: I object to the question. How you would put it in, I believe that --

MR. BRYAN: You would have put it in?

MR. SAXER: How did you put it in?

THE COURT: Well we think that is, - can you demonstrate how you put the particular piece of pipe in, Mr. Vallieres, that was involved in this accident?

A. Yes.

THE COURT: Do you remember how you did it?

A. Yes.

THE COURT: All right, can you show us how that

was done on July 20th?

Q. As best you can, knowing that you don't have a trapeze right next to you.

A. I got start putting in the other end in here, I told him to go to the ladder at the same time to work with the pipe up and on the shoulder like that. I got the face to face with me then I put that in the bracket.

Q. You put the bracket under it like you showed us?

A. Yes.

Q. He did the same thing?

A. Same thing.

Q. Then you let it down on the ladder?

A. Yes.

Q. And it's up there, right?

A. Yes.

Q. Okay, you, let's put it back.

A. (Doing so).

Q. Now, Mr. Vallieres, tell us, I believe you have already told us that you had one section up, is that correct?

A. Yes.

Q. And then you were going to put up the second section, is that right?

A. Yes.

Q. Now, did you have to join the two together?

A. Yes.

Q. And you did that with the coupling you showed us?

A. Yes.

Q. Well did, who had the coupling end?

A. Me.

Q. You had the coupling end?

A. Yes.

Q. And was there a hanger down there where Mr. Quinlan was?

A. Yes.

Q. By the way how high are these ceilings over the ramp, roughly, do you have any idea?

A. If I remember right around 12 feet, maybe more, I can't remember.

Q. And you were using ladders that would be high enough for you to stand on the ladder and reach them?

A. Yes, ten feet, step ladder.

Q. Step ladder?

A. Yes.

Q. Wooden, aluminum, or what?

A. Wood.

Q. Okay now, how far up did you have to climb, in order to be able to reach the place you were working?

A. Oh, I walk two step to down and ten feet ladder, about two.

Q. The top of the ladder would be somewhere in the middle of your waist or something like that?

A. Down a little bit.

Q. About this high?

A. Yah, something like that, it wasn't very high, I think.

Q. Now, did there come a time that you coupled the second

section on the, to the first section?

A. What?

Q. Well, did you get the pipe coupled on to the first section?

A. Yes.

Q. And then what did Mr. Quinlan do?

A. I told him to lay the hands on the pipe and I told him the time to come down on the ladder and look at the pipe up all the time, the time you come down.

Q. What happened after that?

A. I started to come down first.

Q. What?

A. He started to come down on the step ladder, I said to look up and he did and I look me too and I go after him a little bit, I think I got -

Q. You started down the ladder, too?

A. Yes. And the pipe come down and I got up with the pipe.

Q. The pipe started to come down?

A. Yah, come down, yah.

Q. Which end came down?

A. (No response)

Q. Which end came down, of the two sections?

A. Hard to tell. Some was same times and that -

Q. You can't tell, you can't recall?

A. No.

Q. What happened?

A. What's happen, I got up on the pipe and it's heavy,

some electricians there and I come down and call the ambulance and doctors.

Q. Was he able to get up after he fell?

A. No.

Q. Did you observe what part of him was injured?

A. He is, his back and his leg.

Q. Uh huh, did he lay right there, did he?

A. Yes.

Q. Didn't get up?

A. No.

Q. And you say you, - the ambulance came?

A. Yes.

Q. Now, did you have occasion to look after the accident and all the dust had settled, did look and see what broke?

A. Yes.

Q. What actually broke?

A. The pins.

Q. And where did the pin break?

A. (No response).

Q. Show us?

A. (Doing so) Right here.

Q. Right flush with the steel?

A. Flush with the steel.

Q. Plaintiff's #5A steel beam, marked for identification.

MR. SAXER: No objections.

THE COURT: Counsel seeks to admit it?

two lengths and -

Q. You're in the middle, right?

A. Almost and him he can hold the pipe, the pipes got him in the legs and threw him down and in a pile of pipe I have over there, for putting -

Q. Did his ladder tip over?

A. Tip over, break. Mine is break, too.

Q. Did you fall, too?

A. I fall all the way down. No steps staying on the ladder because it was heavy.

Q. And you fell, too?

A. Yes, we had just scraping that's all, just few scratch.

Q. Did the pipe, was the pipe still up there, or was it on the gorund?

A. It's on the ground.

Q. Okay now how many hangers did you have up at that particular point, how many of these pairs?

A. Three.

Q. Three of these?

A. Three.

Q. One on each end and one in the middle?

A. Yes.

Q. Okay, from what you could observe was Mr. QUINLAN hurt?

A. Yes.

Q. And what, from what you observed what happened to him?

a. First I tried to find somebody, just me and him and around, that what's happened and the next room I knew

MR. BRYAN: #5A.

THE COURT: #5A is received.

Q. Now this particular eye beam here, Mr. Vallieres, this is the same size as the one that you were using on the job, the ones in the ceiling?

A. No, it's not the same size.

Q. This is smaller, right?

A. This is smaller.

Q. And how about #5A here, does that look anything like what you were involved with?

A. Yes, that is it.

Q. Approximately that size and shape?

a. Yes.

Q. That is a pretty hefty size, am I right?

A. Yes.

Q. Take a measure and measure that and just give us a rough idea.

A. (Measuring same). Half inch.

Q. Somewhere in that neighborhood?

A. Here it is notthe same it is a half inch here.

Q. Okay. Now I show you on this Plaintiff's #5A, do you see some pins that have been broken off?

A. Yes, here.

Q. Right and is, tell me whether or not that is similar to what you saw in the beam after the accident?

A. (No response)

Q. Tell me whether this is what you see broken off here is

similar to what you saw in the beam after the accident?

A. Yes, that is the same.

Q. Same sort of thing?

A. Yes.

* * *

Q. Mr. Vallieres, I show you what's been marked and received into evidence as Plaintiff's #6, that is actually a joint exhibit between the plaintiff and the defendant and I ask you to look at that and tell me something about it. What does it appear to be? You can open it up.

A. That is your Hilti.

Q. What is the gun part?

A. That is this.

Q. And does that come apart and open up?

A. Yes.

Q. What is the purpose of opening it up?

A. To put the cartridge through it.

Q. What are these here?

A. That is the cartridge.

Q. And what is this, this is a cartridge?

A. Yes.

Q. And that goes in that hole there, right?

A. (No response)

Q. Don't put it in because we don't need to load it, it goes in there?

A. Yes.

Q. Then after you put the cartridge in, what do you do?

A. You put your pins in.

Q. Okay, have you got a pin there?

A. Yes.

Q. Okay, you put the cartridge in the end?

A. Yes.

Q. Then what do you do?

A. (Demonstrating).

Q. Okay, can you take the pin out of there?

A. The pin.

Q. Okay, go ahead.

A. (Demonstrating).

Q. Now, assuming the pin were still in there and you wanted to fasten something, fasten the pin to this table what would you do, assuming, making the assumption that the pin is still in the cartridge and make the assumption that the cartridge is in, now, supposing you wanted to drive the pin into this table, show the jury what you would do.

A. Take this hammer here, I put this down, get the pin here, put it, this is holder, this goes through. Any way. Then you hit it like that and it fire the

cartridge and the pin go through the beams.

Q. Now, do you set the head of it down on the object first?

A. Yes.

Q. Like that, and then, "boom".

A. That's right.

Q. And what happens, does this cartridge fire?

A. Yah.

Q. Okay, I take it then that this process is repeated for each pin that you want to put in?

A. Yes.

Q. Now, supposing you are working overhead, what do you do, you load it and then stand up and show the jury.

A. I put the pins and I go up and I push it.

Q. Then, "bang"?

A. Yes.

Q. Is this the type of gun and equipment that you were provided with on the 20th of July 1970 on the job in question?

A. Yes.

Q. Same size and type?

A. Same size.

Q. Do you have a pair, - is there a same kit?

A. Yah.

Q. Did they come in a kit at that time, too?

A. Yes., (mumbling, continuing),---

You got a thing like that, looks like that, this hammer, guns, pins, cartridge.

Q. It all came in a kit like that?

A. Yes.

Q. How long had you been using Hilti guns?

A. The time?

Q. At that time.

A. At that time, for three, four years any way.

Q. Is there some sort of list that you get, excuse me, is there some sort of a license that you get?

A. Yes.

Q. To use them?

A. Yes.

Q. And who do you get the license from?

A. From HILTI Company.

Q. The HILTI Company, themselves?

A. Yes.

Q. And I take it you were licensed on the day that this accident happened?

A. Yes.

Q. Now, we should back up a minute. In the morning, I take it, this all happened in the morning?

A. (No response)

Q. About what time of day did this accident happen?

A. I'd say around 10:30, 11:00 o'clock, very close to the dinner time.

Q. And I take it that you didn't know that much what you were going to do that morning when you got on the job, is that right?

A. Yes.

Q. You were told by WALKER what to do?

A. Yes.

Q. Now, you learned, I presume, subsequently that someone along the chain of command and we'll tie this up in the evidence later, Your Honor, selected the pins to use on the beams, is that right?

A. Yes.

Q. And you were told that morning how to do that, I believe you testified to that?

A. Yes.

Q. Now, was there anything about that system that you would like or didn't like, or that you had any comment on?

A. Yes, at first, after the, I see the power pipe, three inch and give me the guns and they were quarter inch pipe to put that pipe in the beams and I ask him how come you want to do that.

Q. Who is "him", WALKER?

A. WALKER, the foreman, he said that is not powder. I said that is funny, I never see that in my life for so many years, three-inch pipe with quarter inch pin and he turned around and then go a couple of hours, hour and a half, I think later, he come down and he said he look and says, you don't start the job? I said, "no". He said, how come, I said, this is no good. I don't want to kill somebody here with that. He said, if you don't start the job before noon, you

are fired.

Q. Now, were you doing something else in that period of time?

A. No, nothing.

Q. Was Frank QUINLAN on the job?

A. Yes.

Q. He was a part to this conversation in any way? Was he?

A. I can't tell, maybe "surround," I just, the foreman he talk to me, don't talk to him.

Q. I see and did there come a time when you did start the job?

A. I never start before.

Q. No, but there came a time when you did go and put up the pipe?

A. I put up the pipe before I get fired.

Q. Did you discuss with FRANK how to do this, -

A. Before?

Q. - when you started the job?

A. Yes.

Q. Had he ever had any experience or say anything about any experience with this type of equipment before?

A. No, I never need him first on the job, no places, I said how long you been an electrician, he said, I am not an electrician, I am just a helper and I said how much experience you got, he said, I am just start what you say maybe a year and a half, or so.

Q. So then you went ahead with the project as you have described to us?

A. Yes.

Q. Today? Now, after the accident, did there come a time when somebody came on the job to inquire about this accident?

A. yes, the Hilti Company man come, the two mans, I don't know what she found exactly, two mans from the Hilti Company come down on the job and foreman he got the other, the other ones.

Q. The foreman?

A. The foreman, Wally WALKER.

Q. All right -

A. And he bring them -

Q. Where did they come, did they come out to where you had been working?

A. No, the foreman come down to take me down where the accident happen, the Hilti man says, you do the job here, and I says, yes, he says, what's happened?

Q. He apparently knew about the accident?

A. Yes.

Q. What kind of clothes was he dressed in?

A. Nice clothes, dress.

Q. Suit clothes?

a. Uh huh.

Q. He apparently came to inspect this accident, is that right?

A. Yes.

Q. What transpired?

A. He said, what did you do, I said, I do nothing. I tried

to explain to him, Wally WALKERS, that pins never hold the three-inch pipe. I said, I never see that. He said, you didn't? I said, yes.

Q. He said what?

A. He said, you didn't? I said yes. He said he want to try again. I said no and he ask for my license. He said, you got license? I said yes, and I showed to him. He said do you want to, I want to see what you do. He said I want to see you shoot the pins. I said I'm not putting the pipes. I shoot the pins, if you want. And I get the step ladders.

Q. Now, this took place right where the accident happened?

A. Yes. And I showed about two or three inches was I shoot before, its inside, outside.

Q. You climbed up the ladder and put some pins in?

A. Yes and I come down and he said, "I want to test it" and he go up and he looked, he said, "It's okay," he look all right. I said, "yes, just for, not for all of the time," and he said, "you want put one pipe up?" And I said, "No, let put up i pipes up, if you want it," and a few argument, I don't remember what I say to him, and, --

Q. In any event, he said -

A. He said, "I tried to show," he tried. He try to shoot.

Q. He shot a pipe in to the -

A. Into the - inside, in "cement". He do the same thing I did, with the pins on the beam and after that I told

him, I said, "you want my pliers," "just shake the pins a little bit, just shake them up one inch like that and it broke right off.

Q. He did that?

A. Yes.

Q. Way up there?

A. Way off.

Q. What was his response to that?

A. He's got surprised.

Q. He was surprised?

A. He was surprised, yah.

Q. He apparently didn't believe it would break that easily?

A. That's right.

Q. Did he break any more off?

A. Oh yes,he tried 2 or 3.

Q. Now, you say that, - the pin was up when he did this?

A. Yes.

Q. Did he screw the coupling on the pin?

A. Yes.

Q. Now the, - what kind of pliers did you have?

A. Electrician pliers, nine inches.

Q. Fairly good-sized pliers?

A. Yes, nine-inch.

Q. Did he have the adapter on like that?

A. Yes.

Q. Grabbed it like that?

A. Yes.

Q. Did he break any off without the adapter just like this?

A. I don't think so, no, I don't remember.

Q. You don't remember for sure, okay, did you break any off?

A. Yes, easy.

Q. And he was quite surprised that these broke that easy, is that right?

A. Yes.

Q. Now, what did he indicate anything you should do or should not do after he discovered what the situation was?

A. After that he try to the thing and he says don't use it any more. And, that's the end of the conversation with the Hilti man.

Q. He went away?

A. Yes.

Q. I take it when he came on the job, if I understand your testimony correctly, that it wasn't until after that he had broken the pins with the pliers, that he thought this system wouldn't work, is that right?

A. Yes.

Q. Now, are you aware that there are some figures that are put out by HILTI that tell us how much these pins will hold and in steel?

A. No, sir.

Q. You don't - you didn't have anything to do wi th those?

A. No.

Q. You didn't have anything to do with selecting, making this selection or deciding to use these pins there, did you,

for this trapeze?

A. No, sir.

Q. I see.

MR. BRYAN: I have nothing further at this time.

THE COURT: Cross examination, Mr. Saxer?

CROSS EXAMINATION BY MR. SAXER:

Q. Mr. Vallieres, you have indicated that after the accident occurred, the HILTI man came there to see what happened, is that correct?

A. Yes.

Q. Do you recall if that gentleman was Mr. Ted SMITH, the man that is sitting right there, do you recognize him?

A. I cannot recognize him.

Q. It's been a long time?

A. Yes.

Q. He may have gained a little weight. Now, isn't it true that he went there, - he asked you what happened. He came there to find out what happened?

A. Yes.

Q. And you showed him, you put the pins up there, and then -

A. Yes.

Q. - he asked you how you installed the pins?

A. Yes.

Q. And you showed him how you installed the pins?

A. Uh huh.

Q. And he got up to look at the way the pin was installed and

he said, "okay, install the pin correctly,"

A. Yes.

Q. And then did you show him what you were doing or what you did with the trapeze, - where is the trapeze? Oh, did you show him what you did with this?

A. (No response).

Q. Did you show him what you were doing up there?

A. Yes.

Q. Did you show him this was designed, how you did about it?

A. Yes.

Q. You showed him exactly what happened and you showed him what was done?

A. Uh huh.

Q. Now, after you showed him everything that you did, did he not tell you, Mr. Vallieres, that this was wrong, that this was not the way to use this product, isn't that the way he said it?

A. He said, "don't use it."

Q. Now, you and I have met before, do you recall when you came to my office and Mr. HOFF and Mr. BRYAN were there and we took your deposition?

A. (No response).

Q. Do you recall that?

A. Yes.

Q. Do you recall the testimony that you gave at the deposition?

A. (No response).

Q. Have you had a chance to review the deposition before you

came?

A. No, not very much.

Q. Not much?

A. No.

Q. Let me show you one here . I think I have the carbon copy. Now, let me direct you to line #20, of your deposition which we took with all the lawyers in my office I think, last September, is that correct?

A. Uh huh.

Q. And I asked you a question there, "What did the HILTI man want to see," and -

MR. BRYAN: Excuse me, would you identify the line and the page?

MR. SAXER: In a moment.

Q. I asked you a question there as to what the Hilti man wanted to see, isn't that correct, on page 19, line 20, what did he want to see?

A. Yes.

Q. Did you give the following response: "He wanted to see, he said you want to shoot me the pins into the beams at the same place," and I said, "yes. I got the guns and I put the pins in the cartridge and I shoot and I go down." He said, "I want you to look at it." He looked and I said, "what do you think?" He said, "she looks all right." Now, at that point, wasn't he talking about the way you installed the pin? In other words, you installed the pin correctly?

A. Yes.

Q. All right, did he go on, did you go on to say , describing that event, I said, "Now you want to break it," and he said, "What do you mean?" You got your pliers and told him to pick up the pliers here and do like that, - what did you mean? What did you tell him?

A. Just shake it.

Q. Shake it? Put the pin on it?

A. Yes.

Q. Freeze the pliers on the pin and move the pliers like that?

A. Yes.

Q. Is that what you told him to do?

A. Yes.

Q. And then you said "He do and it break right off," is that what you said?

A. Yes.

Q. And then did he say to you and you told me this, of course, "that after everything was done, he said it was wrong, it was not made for that." Isn't that precisely what he said, when he -

A. Something like that, yes.

Q. And naturally he waited to see the whole story before he toldf you what he thought, he asked to see and you told the whole story and he told you what he thought, is that correct?

A. (No oral response).

Q. Now, you indicated - by the way, you are the only eye

witness to this accident, isn't that true, there was nobody else in this room?

A. Yes.

Q. About how big was the room that the accident took place in, as big as this room, bigger, smaller, or, -

A. Bigger than here in fact, I remember it's bigger than here, if I remember exactly, about the same size, a little bigger.

Q. Bigger here?

A. Bigger than here.

Q. Good sized room?

A. Yes.

Q. And you and Mr. QUINLAN, at the time of the accident, were the only people in this room, is that correct?

A. Yes.

Q. You, incidentally, mentioned that you had a HILTI license, could you tell the Court and the Jury what that is?

A. Just HILTI cartridge.

Q. And what does that mean?

A. Just the names in the cart, and the stuff with the cart and you got, on top of the cart, you got HILTI Company.

Q. And where did you get that?

A. And the names, - you want rest.

Q. Where did you get it from? That HILTI license?

A. From HILTI Company.

Q. And, for what reason did you get a HILTI license?

A. (No oral response).
Q. What is a Hilti license?
A. You are supposed to know what they are used, how to use that gun.
Q. Did you get some instructions from HILTI as to how to use the gun before you got your license?
A. Yes.
Q. Now how does that happen, does a HILTI man come to the site and show you how to use the tools?
A. Yes.
Q. Gives you training?
A. Yes.
Q. Shows you what parts that go in there?
A. Yes.
Q. And after he's satisfied that you know how to use their equipment, he gives you a certificate saying that you are familiar with his equipment?
A. Exactly.
Q. Now, before this accident with Mr. QUINLAN, had you used HILTI equipment before in your thirty years as an electrician?
A. Before that, the accident?
Q. Before the accident?
A. Yes.
Q. You used it a lot, before?
A. No.
Q. Is it common in the industry?

A. Uh huh.

Q. What is it used for? I don't think anybody has told the Jury yet, roughly, what fastening equipment is used for, could you give a couple of examples of what you use fastening equipment for?

A. I used that HILTI guns not for suspension setting, I never used that before the accident up - (interrupted)

Q. In thirty years - (Simultaneous voices)

A. - in the walls.

Q. In thirty years experience, you never used a system where the pin was put in like this in the beams?

A. In the beams, with three-inch pipe, no.

Q. Never?

A. Never.

Q. In thirty years?

A. Yes, sir.

Q. What type of suspension -

* * *

Q. Mr. WALKER showed you this powder conduits, strike that. At 7:00 in the morning, Mr. WALKER showed you this pile of conduits, then he said, - he showed you these pins and then he said that he wanted you to make a conduit suspension like this?

A. Yes.

Q. Did you say, "Yes, sir, boss, I'll do it right away"?

A. No.

Q. What did you tell him?

A. I told him, you do the job like that this morning, he said, "that's my order." And he turn around and he go visit some more electrician on the job. I never start the job.

Q. You refused to do it?

A. Yes.

Q. You said, "I don't want to do this"?

A. Yes.

Q. Was Mr. QUINLAN right in that room at this time?

A. He is around there, yah, I don't know if he is understand what I say to him.

Q. Do you recall that he was present for the instructions on what to do, how would he know what to do for example, if he wasn't there?

A. I tell him what to do.

Q. You told him about this?

A. Yes.

Q. Did you tell him that you weren't going to do it?

A. If I remember, yes, I don't want to do it.

Q. You said you just met Mr. QUINLAN, I take it?

A. Yes.

Q. You had never seen Mr. QUINLAN before that accident, before that day at 7:00 o'clock in the morning?

A. Before that morning.

Q. You say he was hurt you say around 10:30 or 11:00 o'clock?

A. I don't remember, exactly.

Q. Have you ever seen him since then?

A. No.

Q. You say you saw Mr. QUINLAN from 7:00 o'clock in the morning until the time you took him to the hospital and you have never seen him before, or since?

A. No.

Q. Now, you refused to do it, if I understood your direct testimony correctly, for a period of time, if I understood you correctly, Mr. WALKER told you to do it and you said you wouldn't do it and I guess he didn't believe you because he left and he came back two hours later?

A. Yes.

Q. And you still hadn't started it?

A. Hadn't done it, a couple of time.

Q. You still had not started what you were about to do?

A. No.

Q. What did you and Mr QUINLAN do for two hours in that room, did you get a chance to discuss this?

A. Yes.

Q. For two hours in this room you discussed this work assignment?

A. Yes.

Q. And as to why you didn't want to do it?

A. Uh huh.

Q. Did you tell Mr. QUINLAN as to why you didn't want to do it, that you thought it was dangerous?

A. Yes, I told him it was dangerous.

Q. Did you tell Mr. QUINLAN, face-to-face, in a conversation? I mean, he's not over on the other side of this room, now we don't have to worry whether he heard you or Mr. WALKER, this is something you and Mr. QUINLAN spoke about?

A. Uh huh.

Q. You told him you refused to do it?

A. Yes.

Q. He asked you why?

A. Yes.

Q. You told him it was dangerous, that it would break, is that correct?

A. Yes.

Q. Before you started, before you put your first pin into the steel, you told Mr. QUINLAN that it would break if you tried to do this?

A. I don't say to him it break for a few minutes. I don't remember if I say that. I remember I hold this thing over there. Because I know before I start.

Q. You were deeply concerned about the safety of this apparatus?

A. Yes.

Q. And you told Mr. QUINLAN about that concern in that two hour period?

A. (No response)

Q. I take it in two hours you get to discuss things six ways from Sunday, you probably discussed it several times if that's what you do for two hours?

Mr. WALKER came back?

A. Yes.

Q. Mr. WALKER said go ahead and do it. Isn't that correct?

A. Yes.

Q. Then you went ahead and did it?

A. Yes.

Q. And when you went ahead and did it, you both knew that it was dangerous?

A. Yes.

Q. You both knew that it would probably break?

A. Yes. I don't know if he (mumblin y), - just me.

Q. Now, let's venture into the "why's" of this. I take it Mr. WALKER told you to do this and it didn't take you more than a second to tell Mr. WALKER, "no"?

A. Pardon?

Q. Mr. WALKER gave you the instructions to make this and hang that, you refused right away?

A. Yes.

Q. You didn't have to think about it?

A. No.

Q. You didnt have to wait, you didn't have to call up an engineer and ask him if it was advisable, he got done and you said, "I'm not going to do that," isn't that correct?

A. (No oral response)

Q. Why? Why did you know, from the moment you were asked to do this, that this was dangerous?

A. After so many years you work in the three-inch ceiling pipe, you know that this is not strong enough to hold up the pipe.

Q. Must -

A. The wiring through the pipe, the wire is heavy and the wire inside the pipe, - heavy.

Q. Now, when we discussed this in your depsoition, you also told me about vibration?

A. Yes.

Q., Now when we talk about vibration, isn't that what you said breaks this, vibration? Or bending?

A. Or, bending? I don't say that, bending. Over there, on that job, second floor, -

Q. Uh huh.

A. After I get one length up, you see somebody walking it's on the top of you. If he drop something on the floor, you see that something shake a little bit. - In that.

Q. The vibration?

A. Yes.

Q. From side-to-side? Not straight up, or straight down?

A. Well you see a vibration a little bit.

Q. Yes. Now if you have one of these pieces of conduit between two of these trapezes and there was vibration, the conduit would go like that, wouldn't it?

A. Yes.

Q. What happens, right here, when the conduit goes like that?

Q.(cont'd) Conduit sits right there.

A. Yes.

Q. It's pretty heavy?

A. Yes.

Q. There's quite a bit of friction between the metal of the conduit and the metal of the unistrut?

A. Yes.

Q. Now what happens when that conduit moves a little bit that way, either way? Doesn't that force it right up to that pin?

A. No.

Q. Where does the force go?

A. Well, that - I didn't understand exactly what you mean.

Q. I don't want to hold this up any longer but picturing it the other way, if we were to putting the weight of the conduit on here, well, let's say you push the conduit, well, actually, if the conduit were right here, the same purpose is what we are talking about, you assume the conduit would be across there?

A. You don't push the conduit on there.

Q. You don't? Why not?

A. Why not?

Q. Yah.

A. You put down everything you had up before the pipes still in the unistrut.

Q. So you mean if the conduit were to go like that?

A. You put the conduit down, slowly, - I watch it before,

but I never used that in my life.

Q. If the conduit were to be pushed across that, what would happen?

A. (No oral response).

Q. We just took the conduit, -

A. It break right off.

Q. It would break right off?

A. Yes, sure.

Q. Does that mean that these pins down here won't take any of the bending that would be caused by going like that?

A. Yes.

Q. Did you know that from the moment you started this job?

A. I know it.

Q. Now before you started the job, did you, in this two hours before you started with Mr. QUINLAN, did you have a discussion with him or did you tell him to be extra careful?

A. Yes.

Q. To always watch the pipe?

A. Yes.

Q. Why did you bother to tell him that?

A. I just tell you two minutes ago.

Q. Same reason?

A. Same reason.

Q. And if you were to suspend this conduit pipe C-clamps, -

A. Yes.

Q. - would you have told your co-worker be extra careful?

A. No.
Q. Watch the pipe?
A. No.
Q. You told him this because you thought it was going to fall down?
A. Yes, I am very sure.
Q. And it did?
A. Yes.
Q. And it did the first time you put 2 sections up?
A. Yes.
Q. Now, we just used a phrase, a C-clamp, let me see if I can find it. I want to show what's been marked Defendant's #4 for identification, could you tell me and the Jury just what that is?
A. That's a C-clamp to go through the beams.
Q. Now in your thirty years as an electrician, have you seen those before?
A. Yes.
Q. You have seen them a lot?
A. Yes.
Q. In the use in hanging conduits have they been used a lot in your experience?
A. Yes.
Q. Now if I might, to save time, don't they work essentially like that, you put that on the beam like that?
A. No.
Q. No, wrong?

A. Yes.
Q. Do I have it right?
A. That's right, yah, but slides down. Upside down.
Q. Upside down?
A. Then you get your rod down, just the - this is supposed the setting now you get that - (simultaneous voices)
Q. Okay, now if you were going to construct a trapeze with this C-clamp, you would just put this in here?
A. That's right.
Q. You put another C-clamp over there?
A. Yes.
Q. You tighten them up?
A. Yes.
Q. And then you put the unistrut across between the two C-clamps?
A. Yes.
Q. Is that the way you have seen conduits suspended in your thirty years?
A. Yes.
Q. Isn't that just the way they do it?
A. Yes.
Q. Do you recall if, on the day you worked, on that day, whether your employer, Phillip RENZI had any C-clamps in stock, up there? Do you see these lying around on the job?
A. I see some because I put for RENZI, I can see them before.

Q. But they have these, but they use the pins?

A. Yah.

Q. You and Mr. QUINLAN went up on the ladder together, first I take it, with the ten-foot section conduit?

A. Yes.

Q. Mr. Vallieres, where is the coupling in here? I don't fully understand what you mean. Is it this blue thing?

A. No.

Q. No?

A. It's on the other unit, that is the coupling.

Q. So the two ends of the pipe, after you take off the blue part, you fit into this coupling and you screw them together?

A. Yes.

Q. Now first you and Mr. QUINLAN went up the ladder with one piece of pipe, I take it, you have already installed a couple of trapezes?

A. Yes.

Q. Now, so the trapezes were there, three of them, did you say?

A. Three.

Q. Before you walked up with the pipe?

A. (No oral response).

Q. Who installed the trapezes, just you did?

A. I did.

Q. And as soon as you put the nail in, as you told Mr. BRYAN, you put the adapter on, then you put the rod in, what

did you do then? Thats what confuses me. I don't quite get how you installed the conduit yourself when you, - you went up with the ladder?

A. Yes.

Q. Now, how did you get in there?

A. You just set in (mumbling) - (interrupted)

Q. I just wasn't sure I understood you, that is why I wanted to go back. You've got the pipe on the shoulder, right?

A. Yes.

Q. All right and you are facing each other and he's got a piece of pipe on his shoulder and (interrupted)

A. Put the pipe on the shoulder and before you put the pipe up on the ladders, you bring it like that. Like that. You go on the ladders, you drop your pipe here.

Q. Uh huh.

A. And you turn that around and you put it in there.

Q. Now, did you - (simultaneous voices)

A. And you either move the pipe back and forth, or, -

Q. Okay, do you recall doing it exactly in that manner in the

A. What?

Q. Do you recall doing it in exactly that manner?

A. No. I do that that way, the first thing, I don't trust the pin, soon move it, you know?

Q. If you move it just a little bit it will break?

A. Yes.

* * *

Q. Now, just go back to the C-clamp for just a second, if in fact, we construct the trapeze out of couplings of the C-clamps, I asked you before, if you were making a trapeze with two C-clamps, and the rods like that, you wouldn't have bothered to tell Mr. QUINLAN specifically,

watch the pipe, it's going to break, when you use these?

A. No.

Q. Why not, what's the difference?

A. It's a heavy stuff and the pipes quarter inch. Look at the pin. The different thickness there, you've got three-eighths over the beams right there, you twist that with the wrench to make solid and - (S.V.)

Q. It's not subjected to bending up here, there isn't, in other words, (simultaneous voices)

A. No, I never seen one bend.

Q. The rod would bend long before this would bend?

A. That's right.

Q. And the rod probably wouldn't break, it would bend a little, that is about all?

A. It bends.

Q. Bends quite a bit before it would break?

A. Yes.

Q. Now, when you say that little pin, did you know for the moment when you picked this up that if you took this pin and put it in something extremely hard, of course, you couldn't do it with your hands, then put something extremely hard on the other end and went like that, that it was going to break?

A. What is that?

Q. Let me try again. Take a look at that. In using these things, they go into steel?

Q. And of course in steel, they are buried, you can't move them a bit, they are locked in there when they are in and the same with concrete?

A. Yes.

Q. Very hard?

A. Yes.

Q. And you knew that?

A. Yes

Q. And would it be fair to say that you also knew that these things do break?

A. Yes.

Q. Did you need anybody to give you a special warning that says, be careful, you can't bend these, they will break, or did you know that right from the beginning?

A. Yes, sir.

Q. You have known all along that if you took it in, it would break, if you took this and bent it?

A. Yes, but because I break some before, not just in steel beam, I break that in the cement wall.

Q. Sure, everybody who uses these know they'll break if they are bent?

A. I don't say the public.

Q. Everybody that uses these?

A. That's right, yah, that's right.

* * *

REDIRECT EXAMINATION BY MR. BRYAN:

Q. The Defendant's, excuse me, Plaintiff's Exhibit #6 which is a joint exhibit, I show you one of these pins that is in the box and ask you what do they use that type for?

A. Just they use that in the cement, cement block.

Q. Concrete stuff like that?

A. Yes.

Q. And that's a different type of pin, is that right, it's not as hard?

A. Yes, it's not as hard chan the other ones.

Q. Okay now, in the general use of the HILTI fasteners that you have been involved with, for most of your work, which do you use these in more often, concrete or block or steel, which is the most common usage?

A. I say use more pins in the concrete than in the steel.

Q. Do you very often use them in steel, as a practical

matter, in the building trade?

A. Yah, I use them in steel, not heavy, three-quarter inch, half inch, thin.

Q. You have used them to hang conduits in the past?

A. Yes.

Q. Only smaller conduits?

A. Yes, half inch, three-quarters, one inch.

Q. On the concrete?

A. On the concrete.

Q. So it's a question of size, is that right?

A. Yes, it is.

Q. Uh huh and you would say the most common application for HILTI products however, in your experience, is for concrete?

A. Yes.

Q. Or cement block?

A. On cement block, yes.

Q. I take it this pin here that is in the box is designed to fasten something in the, like a nail, rather than to screw something on to it?

A. Yes.

Q. I take it that is it true that this is just a larger version of the same thing we were talking about before?

A. Yes.

Q. You are quite aware that these are very strong if you pull straight down, are you not, if you don't bend them?

A. Yah, we be hold little ways.
Q. They will hold a lot of weight?
A. Yes, you are not moving.
Q. In fact, if you could put that conduit type in the hanger and be absolutely sure it didn't move, would these be strong enough to hold it?
A. Yes, it is, if nothing moving.
Q. If nothing is moving?
A. (Nodded head).
Q. Can you twist these things off with a wrench when you put them in and put a wrench on them?
A. No.
Q. Have you ever?
A. Be break.
Q. Have you ever broken one with the wrench?
A. (Nodded).
Q. You have broken one with a wrench?
A. Some time we put the blocks, not quite box, in the beams and when you put the nut to hold your mite box, you would twist enough to play it a little bit.
Q. And then they will break right off?
A. Uh huh. Some. Some you don't break right off. Some breaks, some don't.
Q. Do they break suddenly when they break or do they -
A. (Indicating with hands)
Q. Break right off?
A. Yes.

* * *

REDIRECT EXAMINATION BYMR. BRYAN:

Q. In response to Mr. Saxer's questions, you knew when they asked you to do this job this way that this was not a good idea, didn't you?

A. Yes.

Q. And when the HILTI man came around after the accident, it was you who explained to him that it wasn't a good idea and he didn't realize it until it broke, is that

MR. SAXER: I object, the HILTI man is here, Mr. BRYAN could ask him that himself.

THE COURT: The objection is over-ruled. Proceed.

Q. Thank you, and do you recall, would you stand up, Mr. SMITH? Do you recall whether that is the man that came by or could it well have been somebody else, if you recall or if you recall?

A. I don't remember.

Q. You don't remember for sure?

A. I was on the job, I don't remember everyone.

Q. But the man who did come by identified himself as a HILTI man, a representative of the company, somebody looking into the accident?

A. Yes.

Q. And there was no question it was a HILTI man, isn't that right?

A. Yes.

Q. And that HILTI man asked you the whole story, is that right?

A. Yes.

Q. And after you had done telling the whole story, the HILTI man then told you what he thought, is that correct?

A. Yes.

* * *

H-A-N-S H-U-V-A, having been called as a witness, was duly sworn by the Clerk and testified on his oath as follows:

DIRECT EXAMINATION BY MR. HOFF:

Q. Would you state your full name, please?

A. Hans HUVA.

Q. And where do you reside, Mr. HUVA?

A. 74 Airport Parkway.

Q. Are you presently employed in some capacity?

A. I am presently self-empoyed.

Q. And do you work primarily in the Burlington area?

A. Since 1968 I've been in the Burlington area.

Q. Now, do - how many years, incidentally, have you been involved in electrical construction work?

A. Since then? Since the accident?
Q. No, in your lifetime?
A. In my lifetime, twenty-five years.
Q. And you've worked in a variety of places?
A. Yes, mostly heavy construction.
Q. Mostly on heavy construction? Do you hold any licenses in this area?
A. Yes, I have a Vermont Master's license and I have a license from Province of Quebec and State of Rhode Island.
Q. Now, in recent years, have you worked primarily in a supervisory role?
A. I've been in supervisory capacity since 1953.
Q. That was again primarily in this country?
A. Some of it in Canada; a lot of it on United States Air Force bases and naval stations in New England.
Q. Now, in 1970 were you employed by a particular company at that time?
A. I was employed by PHILIP RENZI & SON of Vermont, Incorporated, as their top superintendent or area superintendent for State of Vermont.
Q. Were you supervising more than one job?
A. Yes, I was supervising as many jobs as RENZI had in the area.
Q. Do you recall how many there were?
A. In 1970, probably not more than four.
Q. And these were spread throughout Vermont?

A. There were anywhere from Middlebury to Lyndonville.

Q. Were you superintendent then of the construction, electrical construction work that was going on at the UVM dormitory?

A. Yes, I was the superintendent. I covered the "charles horse" (phonetic).

Q. And you occupied that role on July 20, 1970 and before?

A. Yes, I - from 1968 until late '71 I was.

Q. As superintendent, what did your responsibilities involve?

A. Well, simply to tell my foreman or general foreman things, what had to be done, lay out the working procedures and provide them with materials and tools.

Q. Did you work directly on the job itself?

A. Directly yes, off and on but covering all the jobs.

Q. Did you give those actually doing the work instructions?

A. The union rules and regulations are such that I was not to instruct the workmen themselves. I was to go to a foreman or general foreman on the job and it went down the ladder.

Q. So that your work involved your giving instructions to the foreman and he in turn passed it on down the line to the actual working people themselves?

A. That is correct.

Q. Do you know what a permittee is under the union regulations?

A. A permit man is a man that is not a member of a union but due to manpower shortage they hire other people

just to fill the contractor's requirements.

Q. What type of work would ordinarily fall to those operating under such a permit?

A. Well, they would be more like temporary; temporary - if the need for manpower released they would be first to go.

Q. And would they then be given more of the rough work as opposed to the finished technical end?

A. Yes, that would be correct.

Q. Now, sometime prior to July 20, 1970, did you have occasion to consider how you were going to hang conduit in a certain part of the building under construction at UVM?

A. Yes, we had to prepare to proceed with our work to keep the men gainfully employed.

Q. And it was your responsibility to see that that work was laid out and moved in an efficient and expeditious way?

A. To be best of my ability.

Q. And in conjunction with that, did you call the representative of HILTI Company, to come and see you?

MR. SAXER: I object to the leading nature of the question, Your Honor.

THE COURT: Yes, but we'll allow the present question to stand. The objection to the form of the question is well-taken. Go ahead, you may answer.

A. Well, occasionally the need arose to obtain some

fastening materials from HILTO Company and I would call their answering service and he would come to the job to bring the goods.

Q. In response to such a call, did Mr. SMITH or somebody from the HILTI Company, come and visit with you?

A. Yes, Mr. SMITH did.

Q. Do you recall what the date of that visit was?

A. It was prior to the installation date so probably a week, week ahead of time - not exactly - July 15th.

Q. But you think somewhere around about a week before?

A. Somewhere around there.

Q. Mr. HUVA, I show you a document that is entitled Exhibit 3, I'd like to ask you to look at that for a moment.

A. Yes, it's my signature.

Q. Could you tell us what it is?

A. Five boxes of W-G-20, some of the studs. The type of it at this time I don't know exactly but, and five boxes of yellow boosters. There are the little cartridges, the over-loads.

Q. Now, were these to be used in some particular type of material?

A. Yes, they are, they were to be used on construction but not on the steel as supporting the conduit on the steel. I believe these five boxes must be concrete pins.

Q. So that is in an order form then on which you ordered certain materials and things?

A. That is correct.

Q. For use in concrete?

A. Right.

Q. Now, thereafter, did you get into a conversation with the HILTI representative with respect to the use of pins in steel?

MR. SAXER: Mr. Hoff, excuse me, you're in a position where I can't see the witness.

A. Yes, I did bring up the question if there are suitable pins to be used in steel.

Q. And as a result of those conversations, did you order some of those pins?

A. I asked the load-carrying capacity of pins in steel and Mr. SMITH showed me a specifications sheet.

(PLAINTIFF's EXHIBIT #9, Test Figures, marked for identification)

Q. Mr. HUVA, I show you Plaintiffs Exhibit #9 and ask you if these were the figures or essentially the same figures that Mr. SMITH showed you?

A. Yes, I'm sure they are pretty much the same. I thought I recalled having a, some sort of type sheet but essentially the same figures.

MR. SAXER: I will stipulate that we can not locate from our files the documents exactly as they existed at the time, but this is an exact duplicate of that document except printed in another way, the same figures.

THE COURT: All right, go ahead.

A. Yes, that is, that's - the figures are here.

Q. Now, in terms of the type of pin which is contained in Exhibit Number 4,...

A. Exhibit Number 4?

Q. Could you tell us; one, the weight-carrying capacity of that pin that you ordered?

A. Yes, quarter inch; EW-6 would have a tension of 2320 pounds.

Q. Now, is there some other specification with respect to that particular pin?

A. Yes, the shearing capacity of that same pin would be 2819 pounds.

Q. So in both tension or carrying, weight-carrying capacity, and in terms of shearing capacity, which would be the weight placed across the pin, is that correct?

A. The shearing capacity is weight across the pin.

Q. They were both well in excess of a ton?

A. At least thousand percent.

Q. So they exceeded what you expected would be carrying by over a thousand percent?

A. That is correct. There was a safety factor, large safety factor.

Q. Now, incidentally, are there any other specifications contained in what you saw; was there anything with respect to bending?

A. No, I wasn't shown any but I didn't ask for any.

Q. But on that exhibit were there anything with respect to bending or twisting?

A. No, it doesn't, does not mention it. It's just fastening the structural steel, tension and shearing.

Q. On the basis then of the specifications, tension and shear, you ordered these particular pins?

A. Yes, we ordered a box of these starts of pins and also a box of loads.

Q. Would adapters help?

A. Yah, that is true. Of course, the pins were a quarter inch diameter and we had planned to use three eighth inch rod to make our hangers. And adapters to adapt a three-eighth rod to a quarter inch stud.

Q. Now, I show you Exhibit #4. Excuse me, Plaintiff's Exhibit #8. Let's take this one off. And I ask you if this is what you envision?

A. Yeah, this is - some of this, need the pliers on it.

Q. Were you in here earlier when Mr. VALLIERES was testifying?

A. Yes, I ---

Q. And you saw him take apart that apparatus and put it together again?

A. Yes, this is the adapter right in here. Yes, this is the adapter that has the quarter inch breadth on one end and three-eighths of an inch there on the other end.

Q. So then you are the person who designed this particular method of carrying and holding this conduit?

A. Sort of, yes. I was responsible to ordering the

materials and I consulted with my general foreman. We talked the things over and see these substantiating figures and therefore their load-carrying capacities and we'll make our hangers out of these pins and adapters.

Q. Now, were you going to use this for an extensive use in the building or were you going to use it for this one purpose or just what were you going to use it for?

A. Well, this particular use was a small portion of the whole job. There were not more than sixty feet of conduit to be installed and supported in this manner.

Q. Did you anticipate any danger in the use of this particular system?

A. No, not real danger.

MR. SAXER: I misunderstood.

THE COURT: Would you read back the answer?

MR. VESPER: " No, not real danger".

Q. Now, at a certain point of time, let me take you - I'll waive that. Taking you now to July 20th, which I believe was a Monday morning, did you give instructions to Mr. WALKER as to the use of this system?

A. I'm pretty sure that we had our job meeting previous Friday and laying the work out. Now Monday, do these and these things.

Q. This was your custom to, Friday afternoon, to, --

A. That is correct.

Q. ---meet in terms of planning the work so that, for the

ensuing week?

A. That's right.

Q. Now, at any time - you were here when Mr. VALLIERES testified about his concern about this particular system?

A. I heard him testify to that effect.

Q. Did any of this get back to you at all?

A. No, unfortunately not.

q. You would not have designed something that was consciously dangerous to anybody, would you have?

A. No.

* * *

CROSS EXAMINATION BY MR. SAXER:

Q. Mr. HUVA, you indicated that you were the general superintendent of this construction project at the University of Vermont, general superintendent for the electrical

work?

A. For the electrical work.

Q. You were the company man on the job, Phillip RENZI's man?

A. That is correct.

Q. Phillip RENZI was the plaintiff's employer at the time?

A. That is correct.

Q. Now, when you're up there it's you who decides who does the work, isn't that correct, and what work is to be done in the crews?

A. I do not assign the crews to do what. I left it up to my foreman to decide whom they'd assign to different jobs.

Q. The union foreman actually makes the assignment of personnel?

A. That is correct.

Q. Is what you're saying, who decides when the work and what type of work will be done, is that you?

A. That was my respnosibility to see that the man power is used as efficiently as possible.

Q. Now, we discussed this case once; you described that to me and I'd like to see if you can give the same flavor to the jury. This is a big building, a lot of things going on at once, in the construction project, is that correct?

A. That's correct.

Q. I don't think I'm saying it the same way you told it to me. And there's a problem in a big building that is under

construction where a lot of things are going on at once to see that the right crew is in the right place to do the job at the time you can do it; you obviously can't put the walls on before you put your wires in and there's an order of things?

A. That is correct.

Q. And it was you who supervised this order of things as far as electrical work was concerned, is that correct?

A. That is correct.

Q. And it is part of your job to see that your men always have work to do; your employer wouldn't have been happy if at any given Monday morning the electrical crew was idle because there was nothing for them to do; in other words, you try to get that organized and see that?

A. That was my job.

Q. Okay, with regard to the specific work on the job, where do you find out what that work is before you tell the shop steward and the foreman what they do. Where do you go to find out what they're going to do? What is the work, in other words? What's the sources to determine what the work is?

A. The progress of the general construction, the other construction rather than electrical?

Q. Yes.

A. What requires to be done, you have to have the pipes installed before the concrete is poured; you have to

get certain things done ahead of other things.

Q. Uh huh.

A. There is a procedure that you would have to follow for a product.

Q. Now, you work heavily with plans and specifications as well, the plans for the building?

A. Oh, yes.

Q. Could you tell us so that the jury would know what are specifications in a construction project?

A. Specifications are written by an architect.

Q. Or his engineer?

A. Or his engineer. Lining out the materials to be used, types of materials, type of fixtures, type of wire or whatever and specifying to things, mostly construction materials and methods.

Q. Uh huh. These are the specifications, the plans, I take it, are the pictures?

A. Well, you could call them that.

Q. The drawings?

A. The drawings.

Q. Now, at the time that you first saw Mr. SMITH - you know Mr. SMITH?

A. I know Mr. SMITH.

Q. Do you recall the first time you saw him back, it was on the RENZI job at the University of Vermont?

A. It may not have been on the university job but one of the RENZI jobs in Vermont.

Q. RENZI's a big outfit from ----

A. At that time they were one of the largest electrical contractors in New England.

Q. Are you still with them?

A. No. We were unsuccessful finding additional work in Vermont and even though they offered me a job back in Rhode Island, I declined and I was terminated in November '71.

Q. You wanted personally, to stay in Vermont?

A. I did.

Q. Now, you came up here with Phillip RENZI?

A. That is correct.

Q. Now, when you came here to these jobs with Phillip RENZI, did you bring with you HILTI equipment, adapters and studs, right in your working stock?

A. There were some up here prior to me coming up here, but I replenished the stock as it ran out and I think we were fairly good customer of HILTI.

Q. I suppose what I'm asking you is RENZI was, for example, had the tools that were in this box?

A. We had some.

Q. Previous to this job?

A. That is correct.

Q. And they were in wide use in RENZI's business?

A. We used them extensively.

Q. Give me an idea, give the jury an idea just how this tool and these pins are used during your construction projects,

electrical construction work; I know there's a million ways, don't tell us all million of them, but could you give us a couple of examples?

A. Several methods and things; you could fasten your outfit boxes, your banner boxes, using them on pipe straps.

Q. Pipe straps?

A. Or going to conduit straps.

Q. Let me show you what's been marked as Defendant's "C" - is that a strap?

A. No, that is a clevis, clevis hanger. That is used to support a "balance beach" conduit, a single run of conduit.

Q. This is something that you could put three-inch conduit down?

A. That is correct.

Q. And suspend it from something else - it's not a pipe strap though, I brought it out ----

A. That's a clevis hanger.

Q. Go on, a couple more examples?

A. Well, we mostly use them on the supporting conduit on walls, ceilings.

Q. Flush to the walls?

A. Flush to the walls.

Q. Were you here whenMr. VALLIERES and I did the things with the yellow piece of paper and the clip?

A. Yes.

Q. Is that what you mean?

A. We use them.

Q. All over the building?

A. Over the projects, different projects.

Q. It's fair to say then, as of the first time you saw my client's representative, Mr. SMITH, you and your operation and your employer and its employees were heavily involved with the use of HILTI tools and fastening equipment to do your job on the construction site?

A. We used them, a lot of them in several states, in NEW HAMPSHIRE, VERMONT, RHODE ISLAND, MASSACHUSETTS, wherever we had work.

Q. Phillip RENZI, in the conduct of his business, has doubtlessly made tens and tens of thousands of fasteners, is that correct?

A. Oh, at least.

Q. At least tens and tens of thousands; they are literally everywhere?

A. Sure.

Q. Now, do you recall what applications you were making of the HILTI product on the jobat the University of Vermont, let's say in July of 1970, but before the plaintiff came to your employ?

A. (No response).

Q. How were you using the equipment in general, before you saw Mr. SMITH on the jobsite?

A. The normal way as we had done in various aspects on the concrete, on the masonry blocks, occasionally on steel.

Q. Now, you were doing that on your own, you weren't asking anybody questions, you weren't calling up the company and saying, tell me how to do this, this is just something that you and the people who worked for you knew how to do?

A. Normal construction method.

Q. Yes. Now, would it be fair to describe thisfastening tool and the fasteners here, would it be fair to describe that method of fastening with the phrase direct stationary fastener, is that correct?

A. I don't follow you quite.

Q. Well, by direct, I mean, ---

A. Direct stationary.

Q. And once it's in, would you agree that it's stationary?

A. Well, it had better be stationary; that's the whole purpose of it, to be stationary, to fasten something to it.

Q. Fasteners in other words, are stationary; when you put it in, they're stationary?

A. Yes, that's the idea.

Q. In the construction industry, do you use fasteners where you expect movement?

A. (No oral response).

Q. Would you put a, stresses of the building on the fastener

itself, for example?

A. No, I don't think the - it doesn't apply to it.

Q. In other words, you don't get ---

A. A fastener is, you are referring to a fastener as a pin, as a stud.

Q. Yes, I guess my point is this, let me give you an example. Suppose you wanted to hang a junction box on a concrete wall. Once you hang that box in place, we'll say you use one fastener in each corner and then bolt it on. That's stationary?

A. That is stationary.

Q. You wouldn't use fasteners in applications where you would expect movement, would you?

A. In a limited movement, yes.

Q. Very small?

A. (Nodding)

Q. A fastener, in other words, is simply a way of attaching something to something?

A. That is correct. You could use it nailing wood on a concrete floor.

Q. Now, you've seen HILTI equipment and it's widely used?

A. Yes, I've seen quite a bit of it.

Q. Have you seen other companies who also use things like this in the construction industry?

A. Yes.

Q. Power-activated tools?

A. Yes, that is correct. They have other makes of other

activated fasteners.

Q. You've used this equipment personally?

A. I have.

Q. You've used other equipment from the competitions, so to speak, personally?

A. Yes.

Q. You've had a chance to view the various competitors in the fastening industry, they've come to you, they've wanted to use their materials, their tools, buy their parts?

A. Yes, we've had, with RENZI, we've had different types of fasteners and equipment, RENSICK, OMARK and HILTI.

Q. Now, you were aware at sometime in 1970 that Ted SMITH was the field representative for HILTI, if you wanted something from HILTI, you'd call Ted SMITH, he's right there?

A. That is correct.

Q. Now, at one time you did call him and leave a message for him to come, do you recall that?

A. I did that several times. Whenever I needed some fastening materials, I'd give his office a call and he'd try to get there as soon as he could.

Q. So that if you decided you wanted something, you would give him a call or leave him a message and he'd come and sell it to you?

A. That's correct.

Q. Now, there came a time when you called him with regard to

fasteners for steel?

A. That is correct.

Q. And he came, and you asked him about steel fasteners and he told you that we sold them, you looked at them, showed you one, I suppose?

A. Yeah, I asked him the load-carrying capacity.

Q. Uh huh.

A. In steel and, these are my stuff because I can't say they are exactly, but I believe.

Q. They are?

A. To my knowledge they are what I saw.

Q. Now, looking at one of those, down there we can see if we place it in our mind's eye up here, that more than one of those will go through here?

A. There was to be a two-inch BMT going in there. By EMT I mean a thin wall, thin wall conduit which is an electrical term, electrical metallic tubing.

Q. So it was your intent when you conceived this notion to install in this trapzee not only that, but another conduit or maybe two?

A. That is correct.

Q. Now, if the project had gotten far enough after these conduits were in place, if it wasn't for this accident, what's the next step, why were we putting conduit up?

A. For several reasons. We had a pile of conduit in the area that was to be covered in concrete in very short

time. Try to move that conduit out of the place or get installed. Naturally, it's more economical to get it installed, so off from the floor, up on the ceiling.

Q. No, I mean the use you had in mind, I mean what were you going, were you going to put anything in these conduits after they were put up?

A. That would have been later, quite a bit later.

Q. All right, had this system worked, something else would have gone into the conduits, wires?

A. At a later date.

Q. Big wires, not household wires?

A. Yeah, a little bigger wires.

Q. Lots of wires?

A. Not too many, only four of them, but --

Q. Is that all?

A. Yah.

Q. I have no idea. Now, you would have then two conduits up there and wires?

A. The other conduit would have been for the telephone cable.

Q. All right now, between them, you proposed actually to install even more weight than is evident here ?

A. That is correct...(simultaneous voices).. I would say we would have added fifty percent more weight to it.

Q. Now, these are pretty heavy in their own right as well?

A. Approximately ninety pounds in length.

Q. I think it's seventy-six, maybe I'm wrong.

A. Maybe I didn't read it right.

Q. Maybe I'm wrong. So actually now, what you were going to put up there had some weight, isn't that correct?

A. Yes. As a matter of fact, I was looking, something suitable to support say 200 pounds per hanger.

Q. Now, do you recall - this is a student building at the University of Vermont, as I recall?

A. That is correct.

Q. And the room ---

A. 71 dorms.

Q. And the room, as I recall, of course, it was just a shell then, but the room was ultimately designed to be a student cafeteria, is that correct?

A. That is known as common, that two dormitory rings plus the middle of it --

Q. Would have all come to eat?

A. With a cafeteria, kitchen and lounge upstairs.

Q. So at some time,..(inaudible). Now, these things were suspended up on the ceiling there?

A. These pipes?

Q. Yah.

A. They would have been behind the suspended ceilings.

Q. That's right, so it wouldn't spoil the students' lunches to look up there and see all these pipes, there would be something over it?

A. That is ---

Q. What is over there?

A. It is a suspended ceiling consisting of some - (mumb-oing) and ceiling "tires" installed in these runners, rectangular two by four foot "tires".

Q. Now, supposing during lunch time up there, one of these conduits chose to let itself go. My point is that suspended ceiling wouldn't even slow it down, would it, it would go right down, "boom"?

A. No, you are mistaken there.

Q. I thought I might be. In other words, was this ceiling just for show under this or is there a ceiling that would catch these if, ---

A. No, these pipes, after the concrete floor was poured or were poured, and partitions installed, masonry partitions, the pipes would have no chance of falling anywhere. They would be embedded in concrete walls.

Q. These would have actually been covered with concrete?

A. They would have been in bases at every partition, by partition, like a board.

Q. How about in the middle, between the walls? Suppose there is a wall there and a wall there and a trapeze there, ---

A. Right, but rigid conduit as such, National Electric Code requires it only to be fastened every 20 feet.

Q. For large conduit?

A. It's a large conduit, substantially strong conduit. It doesn't need too much to support it.

Q. Now, this is a large room as Mr. VALLIERES testified to. He didn't know quite how big a room but he thought it was bigger than this?

A. Oh, yes, three times the size, at least.

Q. And it was going to be one large room when you were done, in other words, it's a big, ---

A. No, not quite, the large room in one sense, but it had little partitions and walls dividing the kitchen from the dining room.

Q. Is this where this conduit went?

A. It went from a panel to, on the second floor, into another sub-panel on the ground floor.

Q. Uh huh, did that cross this partition on the walls?

A. That would have crossed at least four partitions in its route from ---

Q. But the partitions weren't up then?

A. They were not. They would have been installed or they were installed only after the floor was poured.

Q. All right, at the time the instructions for this work was given though, there were no partitions to help hold these pipes?

A. No, there were no partitions.

Q. It was just the hangers that you designed and nothing else to hold them?

A. That is - that is - -

Q. Now, before these partitions were put in, if you were walking through this room and one of these things let

go, it might be just terrible wouldn't it, fall right on you and it could hurt you pretty bad even if you wore a hard hat, wouldn't you say that would be correct?

A. Well, that wasn't the intent.

Q. I'm not asking the intent, I'm not accusing you of anything, I'm just saying if this fell, it would be dangerous, that's all.

A. Well, I have to concur, all flying objects are dangerous.

Q. Now, going back to this, some of these parts you had and some of them you ordered, - had, when I say "had," RENZI had them in stock. For example, you didn't have to order this rod?

A. No, we had ample supply of rods.

Q. Of course, you didn't have to order any nuts and bolts?

A. I suppose we had nuts and unistruts also.

Q. And you had (mumbling, inaudible), so all you needed to buy actually to assemble this trapeze is this adapter and this pin?

A. That is correct. As a matter of fact, I think we even had the power charges. I didn't go into purchase order. I only purchased the studs and the adapters.

Q. We can't get these off, can we?

A. Oh, they go off.

Q. Well, I can do without it. From here up, - let's not count the pins and let's not count the adapters, --

MR. HOFF: Excuse me, sir, same complaint that

you made of me.

MR. SAXER: I'll be away from here in a second.

Q. Not counting the pins and adapters, not counting these parts, that's actually the system that you designed to hang this conduit with, that was your pipe-hanging system, to design the trapeze, to put up three-eighths rods, that's the system to accomplish that?

A. It was a system designed to hold the conduit in place.

Q. And what you - now, would it be fair to say that not counting these pins down here, you could have attached this system to this beam in any number of ways?

A. Well, it seems ---

Q. In other words, these are the fasteners that you used to attach the system right here, but the system itself could have been attached in other ways?

A. (Mumbling, inaUDIBLE)..that the thing could have been accomplished. You could have ---)SIMULT.VOICES)

Q. You're actually.---(SIMULTANEOUS VOICES)

A. - -you could have drilled the beams.

Q. Actually, there, in addition to this system, there's also a lot of other systems to hang pipes and with all of those systems, there's lots of ways to fasten them?

A. That is correct.

Q. In other words, you could use just this system here and you could fasten it with C-clamps, were you here when Mr. VALLIERES, (inaudible), the C clamp?

A. Yes, yes.

Q. That would be a way to use this system except you'd change the fastener?

A. That is correct.

Q. A C-clamp then is a form of fastener and so is this, but ---

A. It is.

Q. -----they're different, the C-clamp is more like a nut and a bolt, I guess?

A. C-clamps are made different ways, also.

Q. Now, you decided to attach the system to the beam with this type of fastener as opposed to another type of fastener, is that right? I mean, you could have used C-clamps, you could have used ---

A. This, this being the most economical and they were available.

Q. I'm not trying to cut you off, you can explain it, but let's get to that in a minute and I'll be there in a minute, okay?

A. (No response).

Q. All right, but you chose to use these, these particular fasteners, and you had your own good reasons, I'm sure, for choosing these, but this is what you chose as opposed to other things that youmight have chosen?

A. That is, that is correct. I was convinced that they would do the job.

Q. And you called Mr. SMITH?

A. I called Mr. SMITH and ----

Q. And you bought some of the fasteners you were convinced

would do the job.

Q. And you called Mr. SMITH?

A. I called Mr. SMITH and ---

Q. And you bought some of the fasteners you were convinced would do the job?

A. Right, like I mentioned before, I, I checked the load-carrying capacity, and after I was satisfied that we had a safety factor, a large factor, a large safety factor built in there, I decided to give them a try.

Q. Now, when you discussed this with the jury or Mr. HOFF for the benefit of the jury, you indicated that there were two sets of figures on this chart, one figure for tension and one figure for shear. Let's explain that just a little bit further. Tension is simply what it would take to pull it out?

A. That is correct.

Q. Not jerk it out or anything, but a slow, dead, stationary weight, how much weight if you kept adding it would take before this thing to --

A. Yes, that is tension.

Q. Now, shear is a little more difficult for me to understand, but I think it has to do with the junction box we're talking about and - (SIMULTANEOUS VOICES)...

A. A junction box or any weight or something where some thing is perpendicular to a wall.

Q. If I took that right there and I put a fastener through it and fastened it to something hard, the force that it has

going down that way is a shear force?

A. That is correct and the pin is shut into a wall, perpendicular at a right angle.

Q. That's right, so that's like what force is that?

A. That is correct, that is a shear.

Q. Now, there's other types of forces, those are just two of the types of forces in construction?

A. Yes, - yes.

Q. For example, you have a torsion force if you bend something. With a wrench, you create a torsion force, and a bending force. That's also another force and that's a well-known force. Nobody woke up and ..(inaudible) .. and had to teach you about bending; that's a force that's been in your mind ever since you've been in the business, wouldn't you say that?

A. That comes close.

Q. Now, when you went to look at these figures, were you trying to find out if these pins would bend or not?

A. No, I didn't. I wasn't offered to, any figures other than just the load-carrying capacity and I didn't ask would they bend. I wasn't told that they would or they wouldn't.

Q. Would it be fair to say that before you purchased these that you knew if they were bent they would break?

A. I was aware that they are rather brittle. If you hit them with the hammer, you can shear them to nothing.

Q. And - this is - and shear and bending, those words get

confusing here - when we're talking about bending, that's something different from shear, isn't it?

A. Well, it will bend to a small degree I suppose. If you exceed the bending capacity, ther it will shear.

Q. And when you purchased these, did you count on any bending capacity at all?

A. No, I ---

Q. You knew the moment that you bought these, didn't you, that this is not the type of thing that you can bend?

A. We didn't set out to bend a[illegible] of these things. I was to ---

Q. I understand that. Was it not your fair hope that this system would be established without any bending being supplied?

A. (No response).

Q. Were you aware when you gave the instructions for this work what would happen if conduit was slid across the tr[illegible]peze?

A. (No response).

Q. Did you give instructions, as Mr. VALLIERES said, to anybody to be extra careful?

THE COURT: I think you've got two questions pending. Maybe they've been answered but I haven't heard the answer to the first one before the second one was told. Would you, was there an answer to the first question, Mr. Vesper?

MR . VESPER: No, Your Honor.

THE COURT: No answer, or "no"?

MR. VESPER: The last answer, "We didn't set out to bend any of these things. It was to..." (Read through next two questions).

THE COURT: I think there's two questions pending.

MR. SAXER: I'll waive the first one, especially the (mumbling) one.

Q. Did you give any special instructions concerning this installation after you told the people what to do?

A. (No response).

Q. Did you tell them to be extra careful like Mr. VALLIERES said?

A. Well, the instructions were given not to force that pipe into that trapeze, to lay it into that trapeze.

Q. Not do, not to do what, with the pipe?

A. Not to shove it in, but lay it in.

Q. What was the reason for these instructions, why did you have those in your mind?

A. Because if you do shove something into some certain weight and quite a bit of weight, two of those would be in excess of 250 pounds and ---

Q. Go on.

A. I was, I was aware that you couldn't apply too large a force without snapping these fasteners right at their, at the shank, right at this point in there.

Q. And you were aware of this, were you not, at the moment that you purchased them?

A. Well, I was aware of it before I purchased them.

Q. You've been aware of it for years?

A. Well, yes, yes, for years.

Q. And when you looked at these, you - incidentally, were going to hang a pretty heavy weight overhead, and if it let go, it would hurt somebody - we can agree on that?

A. No, the figures confirm that ---

Q. No, I'm saying if it let go.

MR. HOFF: Objection, Your Honor.

THE COURT: Yes, we'll allow the witness to answer the question.

Q. Go ahead, sir, answer the question.

A. If the figures were there, I was only going to hang, or the men were going to hang a ten percent of the load-carrying capacity.

Q. But before you told your men that, you wanted to make sure what the load-carrying capacity was?

A. To make sure that we would install the proper fastening, fasteners.

Q. From a point of view of how much weight they will hold?

A. That's correct.

Q. Not from how much bending they will take, isn't that correct?

A. Bending wasn't applicable, didn't ---

Q. (SIMULTANEOUS VOICES) - Now, what happens if you rub one of those big pipes, if this were all stable. I don't

see where the pliers is, this were all tightened up down here.

Q A. Yes.

Q. ----and you ran a pipe across there, ultimately that force would be reflected as bending right there, isn't that correct?

A. Yeah, that would be, that would, it would, in fact, it would be, that would be, there would be a lot of force, lot of force in there. It's just like a - quite a bit of force. You want to reassemble these?

Q. Yeah.

A. Right to the fullest?

Q. Tighten them right up.

A. Okay.

Q. I think those things are spaced a little closely together and it's affected the threads.

A. I think we're a little out of alignment in here.

Q. Yeah, all right now, this is actually how the trapeze would have been when you were done, it would have been tight, firm?

A. Yes, it would have been.

Q. (Inaudible)

A. It would have been thin and this, incidentally, would have been a twenty-four inch wide flange, a real heavy beam.

Q. A bigger beam?

A. Bigger beam.

Q. Now, if that piece of pipe, or two of these pieces of pipe were connected together, were rubbed along this, would that create a force?

A. (No response).

Q. If you slid that across there?

A. It all depends how much weight was left on the hanger when you slid it,..(simultaneous voices).

Q. If two men set it on there and just slid it across ---

MR. HOFF: Your Honor, I think I must object to this because I think the evidence is exactly contrary that there was no sliding on that unless Mr. SAXER has some independent evidence that it did happen.

MR. SAXER: We do, Your Honor. The plaintiff testified during his deposition that he slid the conduit on. We expect to show it later.

THE COURT: Well, very well. We'll allow the question any way.

Q. Sliding along, with two big pieces of conduit, would be a whale of a force, wouldn't it?

A. No, not necessarily. Two men can lift in excess of 200 pounds and --

Q. If they just set it on or pushed it, I mean, just slide it?

A. Yeah, there would be a certain amount of friction there.

Q. Now, that friction force is going to go where, if you follow the friction force right up to where it's going to end, if that happened?

A. Yeah, it would push the trapeze hanger one way, that ---

Q. Okay, and then that force - (SIMULTANEOUS VOICES) - would go right up that rod?

A. Oh, yes, and this would be the crucial point right in here.

Q. And go down and finally rest on a little piece of steel that wide and that's where all of that force would go, if that force occurred?

A. Yeah, that's where the force would end up, correct.

Q. Now, it would also be that way if this were bumped with a piece of conduit?

A. (No response).

Q. Bumped from the side as you installed it?

A. Uh huh, yes.

Q. If you were going to grab it with his hands while he was on the ladder. In other words, there can be any number of ways you can actually put a force on this that went like that?

A. That is correct, you could, number of ways.

Q. But in giving the instructions to do this, you had hoped that no bending force at all would be applied, isn't that correct?

A. A minimum of bending force would be applied.

Q. Now, what's the minimum?

A. Well, small, small amount.

Q. What's a small amount? Just - this is a small amount, we can agree on that?

A. Well, maybe even a little more.

Q. I don't want to do it but - now, when you bought these from Mr. Smith, did you ask him any questions about what you had intended to do with it, did you say, Mr. SMITH, I'd like to hang conduit in this manner, could you advise me?

A. No, I didnt ask Mr. SMITH for any advice.

Q. Did you tell him what you were going to do?

A. There is a possibility, but I don't really recall that I say it. Yes, I'm sure I didn't tell him the whole story, how I planned to do it, no.

Q. And you did check to be sure that the stud you were using had a carrying capacity sufficient to hold the load you intended to suspend?

A. Yeah, ;and I was satisfied after I saw those figures, they were substantially higher than ---

Q. Satisfied of what? Satisfied that it would hold the load as a matter of tension?

A. It would hold the load, would hold the load.

Q. Now, as far as Mr. SMITH knew, you could have been hanging sections of conduit or sections of anything else?

A. (No response).

Q. You could have been, for example, putting up junction boxes on the wall?

A. (No response).

Q. Or on steel beams. In other words, you didn't tell him what you proposed to do, isn't that true?

A. Yeah, that is correct. I didn't tell him exactly what I was going to, the application I was going to use to suspend.

Q. Now, in your experience before the day of this accident before the time you ordered these, did you become aware that the HILTI Company had engineering services available to people in the field who had questions about what you can use fasteners for, in other words, you can call up the HILTI man and he can find out things for you?

A. They were advertising if you have a fastening problem see HILTI, and they would recommend the type of fastener for the condition, whatever you wanted to fasten to, concrete, ..(inaudible),...steel.

Q. You were aware that they were willing to give advice to those who asked for it in other words?

A. If there were a problem. I didn't see any problem.

Q. Now, did these figures that you looked at here mislead you in any way, to think that these studs would not break if somebody managed to put a bending force on them?

A. They are not unbreakable. I was aware of that.

Q. Uh huh, in other words, you don't feel that HILTI misled you here by not telling you that these break, you knew that?

A. I knew that they would break, but after the accident, I didn't know that they would break that easily.

Q. How easily do they break?

A. Fairly easy.

Q. They're pretty hard?

A. But applying the force in this particular way they would break.

Q. You knew in fact when you bought them that they were not designed to be bent?

A. (No response).

Q. Any more than a nut or a bolt is designed to be bent, is that correct?

A. Not to be bent, yes, we - nobody set out to bend them. It was ---

Q. ThAt's right, you didn't set out to bend them, but apparently it did occur?

A. Unfortunately it did.

Q. All right, but you knew that you couldn't bend them and get away with it before you bought them?

A. Well, this bending bit, it wasn't intended, that was the whole, whole bit, avoid from bending.

Q. Did you tell your workmen it would be very important to avoid from bending them?

A. No, ---

Q. Did you tell your foreman that?

A. I, we did discuss that, with my general foreman and the foreman on our normal weekly job meeting. We are using this method but we got to be careful.

Q. Special care?

A. A little extra care.

Q. And that's because you knew you couldn't bend them?

A. You can't. You can't.

Q. All right and nothing in this weight chart led you to believe that you could?

A. No, no, it doesn't. It's just a, the load-carrying capacity and the shearing strength.

Q. But by the reason and the fact that they'll hold over two thousand pounds, Mr. HOFF has used that in another way, but let me ask you this. It seems to be suggested that you were misled to thinking these things wouldn't break or bend, because they would hold such a great weight. Now, is there any truth to that at all?

A. Well, there is a little truth in it.

Q. How?

A. Cause they are fasteners, they are supposed to hold over 2,000 pounds.

Q. I'm not talking about the weight, I'm talking about the bending again.

A. The bending? We never entered, - the conversation wasn't about bending.

Q. Just about weight?

A. Just about the weight, the holding weight.

Q. Now, in this pipe hanger which we looked at a minute ago, there is apparently some provision in the design for a little bending. The pipe hit that, of course, then the bending here would be absorbed before it hit the

beam, this absorbs some of the bending?

A. That is - that is correct.

Q. Is there anything in this system that absorbs the bending at all?

A This system wouldn't require any bending. There is no - after conduit is installed, there is no bending. The conduit would be stationary, solid, cemented in a concrete masonary wall. There's no movement of any kind.

Q. Now, one of the things here is we're not talking about after it was installed, we're talking about during the installation. It never got completed, but if it was bent during installation, then it would break. I appreciate that, it wouldn't, if it got up there and held, but it didn't get that far, did it?

A. No, it didn't.

Q. NOW, Assuming that it did get that far, it would hold the weight?

A. Yes.

Q. But anywhere on the way to getting there if you bent it it would break, isn't that right?

A. Apparently it does not require a big amount of force to break them which is, proof is in the pudding.

Q. Well, let's talk about a big amount of force for a minute. Now, suppose you and I connected these two things here, and put them up on one of those. Suppose we were standing on ladders and the thing was balanced on our

shoulder and I moved forward a little and up on your end, the end of that beam, and the end of those two pieces hit that, just like that. would you say that that would be a big amount of force, astronomical amount of force?

A. No, it wouldn't be an astronomical amount of force.

Q. The thing would be suspiciously like a battering ram, wouldn't it, it - (SIMULTANEOUS VOICES)

A. No, ..(SIMULTANEOUS VOICES)

MR. HOFF: Your Honor, I think this is getting a little far afield unless he's prepared to show some sort of battering ram.

THE COURT: Well, the cross-examination at this point is argumentative, Mr. SAXER, and -- (Interrupted)

A. No, I wouldn't consider ----(SIMULTANEOUS VOICES)

THE COURT: There's no question pending, Mr. Huva.

MR. SAXER: I'll check my notes, Your Honor.

Q. I'm going to show you what's been marked Defendant's "A" for identification and could you tell me what it is?

A. That is a sheet of job specifications, Section 16-B, basic materials and methods, UVM, '71 Dormitory .

Q. Is that the project that we're talking about here?

A. That's the project we are talking about.

Q. Are there specifications set forth there for the hanging of conduit in the air?

A. Conduit supported every five feet using hangers

approved by the architect, "various drawings" of all conduit angles and assemblies to architect for approval. This is a standard type of specification. All specifications have much the same things in ---

Q. They're written by the architect's engineer,---

A. And they -----

Q. Approved by the architect?

A. That is - that is correct.

Q. And these aren't specifications for hanging large conduits in the air?

MR. HOFF: Objection, Your Honor, unless the witness absolutely knows that these are the specs for that particular job, and knows of his own knowledge, I object. Other than that, if he can answer, fine, but the question does not go to the point.

THE COURT: I think the Court understood the witness to say that they were the specifications for this project.

MR. HOFF: I don't know what he's looking at.

A. They are a sheet, specifications sheet, a photostatic copy of a specifications sheet, specifications as such if a contractor goes for every smallest detail to an architect, the projects would never get done.

Q. Uh huh, if, ---

A. Only very few things involved in there and it was such an insignificant piece of work that ----

Q. ONly sixty feet?

A. Less than - about fifty feet, maybe less.
Q. The total - (inaudible, mumbling) - that you were hanging, about 2,000 pounds, the whole thing, the whole job?
A. No, not that much.
Q. I'm not a very fast adder.
A. Even at a hundred pounds a piece, six pieces would only be 600 pounds.
Q. Now, the specifications here set forth two different things with regard to conduit, isn't that correct? Paragraph one and paragraph two?
A. That is correct.
Q. Now, paragraph one says, "Conduits on surface shall have steel sitting "kindor" clips or clamps." Now, when it says, "conduit on surface," is that the example that I gave with Mr. VALLIERES in the yellow tube and the little clamp and he showed me how to install it? That's the - (mumbling, inaudible). (Drops voice, turns body away from reporter).
A. The surface, that is whatever ----(butted in)
Q. In other words, you can use those little clamps, - (butted in, simultaneous voices).
A. You can use just about anything if it's approved.
Q. Now, paragraph 2 says, "Conduits and air." Now, this would have been conduit in the air in the stage that you were putting it in even if you were going to build walls around it later. Up until the point that Mr. QUINLAN got hurt, it was conduit in the air, is

that right?

A. It was ---

Q. It says it's to have sway bracing, the specifications. Did this design have any sway bracing?

A. Sway bracing is required or "appointed runs" of conduit to prevent it from swaying while he started the wires into theconduit. First we start a conduit, then you have to put a conductor for cables into it.

Q. As of the time this accident occurred, there was no sway bracing on it?

A. No, the sway bracing would have been substituted by masonary boards that would have more, have sway braced the conduit for wire..(inaudible)...

Q. Ah, I see. Now, that paragraph 2 about conduits in air goes on and says, "have three-eighths rod" - that's this?

A. Three-eighths rod.

Q. And it goes on to say "and steel city kindor fittings", is that correct?

A. Yes, they are trade names.

Q. Okay, I agree that that's a trade name. Steel City, Kindor Manufacturer's fittings to hang things with, is that correct?

A. That's right.

Q. And you could actually get away with using Steel City or the products of one of its competitors in that business?

A. Yes, as a matter of fact, Steel City makes something similar to the unistruts, so does Kindor.

(Defendant's Exhibit "B", hanger catalog, marked for identification)

Q. I'll show you a catalog and ask if you could tell the court and the Jury what that catalog purports to be?

A. Kindor catalog.

Q. The Steel City Kindor Catalog, is that right?

A. Kindor, Steel City, Pittsburg, Pennyslvania, Kindor channels, accessories and fittings.

Q. Now, in a general way, would it be fair to say that this company is in fact in the pipe hanging business?

A. Oh, more than that. They are specializing in hanging pipes, cables, "directs" of all sorts.

Q. Hanging is their business?

A. Yes.

Q. They're not just a fastening company, they actually manufacture hangers and all the accessories?

A. And all the accessories.

Q. Now, it is true, or, is it true that Steel City Kindor, and I don't have one of their products, but is it true that they manufacture things that are essentially like this?

A. I'm sure they do.

Q. Now, anywhere in their catalog could you find me, or do they use a stud to make one of their suspensions, a stud likethe ones that we've been talking about

at this trial?

A. No, they would advertise themselves out of business. It wouldn't be ethical to advertise the competitors line.

Q. You mean, would you say that they're a comprehensive pipe hanging outfit, Steel City Kindor?

A. They hang more than pipes.

Q. They hang many different things in many different ways?

A. That is correct.

Q, With many different devices?

A. That is correct.

Q. Among those different devices that they use, do we find any studs at all, in other words, ---

A. No, the pattern, they don't manufacture studs so they don't advertise studs.

THE COURT: We'll suspend at this time until tomorrow morning at 9:30.

MR. HOFF: Your Honor, could we approach the Bench for a second before we leave?

THE COURT: Yes.

(At the Bench, off-the-record discussion)

THE COURT: Very well, if you can finish up with this witness in the time indicated, we'll stay a little longer so that the witness may be released.

Q. In any event, if one were to look up those specifications and use as the specifications sets, Steel City Kindor fittings, one would have gone to this book and found

devices essentially similar to the C-clamp?

A. Or similar.

Q. Or, similar, but you don't find the studs?

A. (No response).

Q. Mr. HUVA, we're trying to complete today so that you can go back to Burlington and not have to come back tomorrow. Now, at the top of the specifications for both the clips and "Indian area," it says, "furnished drawings of all conduit hangers and assemblies to architect for approval." Is that the conduit hanger?

A. I just made a statement that on the project as this, it would have been feasible to go every little detail to the architect and ask for approval. There are certain things you install and this was definitely on the intention that additional support would be applied before cables were pulled into the conduit.

Q. But it wouldn't be applied when the workers were installing it?

A. By --(mumbling)--forces, no.

MR. SAXER: NO further questions . Thank you.

REDIRECT EXAMINATION BY MR. HOFF:

Q. Mr. HUVA, we want to get you out of here.

A. Good.

Q. You've been in this field for a long time and certain customs and useages have sprung up over a period of time, have they not?

A. That is correct.

Q. And so that you obviously then don't submit every little detail for the architect?

A. Not for every minor, - for example, if I had like 2 miles of pipe to run, then we would establish the method and something more substantial and then we would submit the shop drawing or what, but just for merely sixty feet or six lengths of pipe and four hangers.

Q. And isn't it true that ordinarily that the method of fastening would be left to you, isn't that correct?

A. Well, we would have to follow the specifications, and we have inspectors usually to keep their eyes on the things that have been done in accordance with plans and specifications. But again, the small, - when few items, they are overlooked. It's a normal construction trend.

* * *

R-I-C-H-A-R-D W. M-c-L-A-Y, having been called as a witness by the plaintiff, was duly sworn and testified on his oath as follows:

DIRECT EXAMINATION BY MR. BRYAN:

Q. For the record sir, could you give us your name and where you live?

A. Richard W. McLay and I live in Essex Junction, Vermont 18 Redwood Terrace.

Q. And what is your occupation?

A. I am a professor at the University of Vermont.

Q. What do you - what is your work, what type of a professor are you?

A. I am a professor of mechanical engineering.

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HERMAN J. VESPER
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Q. Now, did there come a time sir when I consulted with you with respect to this particular case and the HILTI fasteners involved and -

A. Yes.

Q. And have you been here since the commencement of the

testimony and listened to the testimony in Court as it has been given so far?

A. Yes.

Q. And you also were submitted I - submitted certain materials prior to your work here in Court that is, over the last number of months?

A. Yes.

Q. And did those involve some of the fasteners that are in exhibit here in Court, particularly in Plaintiff's Exhibit #6, these materials in this box?

A. Yes.

Q. In fact you have had this in your custody for some period of time, have you not?

A. Yes.

Q. And you are familiar with the contents of this exhibit, the gun, the fasteners, the different parts?

A. Yes.

Q. When did you first become involved, as best you can recall, in this particular case?

A. The records that I have show that I began working on it in November of last year, when I purchased certain materials.

Q. And would you tell us generally what you were provided with in the way of physical materials and what you did?

A. I was provided the tool in the Plaintiff's exhibit there, fasteners, I was provided some three-eights inch steel rods and some couplings or connectors.

Q. And does, would you just look through there and see if that contains roughly what you have seen?

A. Yes.

Q. Did you receive any written materials in connection therewith from the HILTI Company, that is with the HILTI name on them?

A. Yes, the Instruction Manual.

Q. Is that contained there now?

A. No, that is the red manual that I believe is in an exhibit now.

Q. Yah, I don't -

A. I don't know which one.

Q. I don't believe this one exactly is the exhibit, may I have it?

MR. SAXER: Never took it from me.

MR. BRYAN: It's the same, is this?

MR. SAXER: No, no, I don't -

Q. You had occasion then to review a manual similar to that which was also provided you, is that correct?

A. Yes, this is the manual.

Q. And as part of that you may recall that a certain sheet was removed, Plaintiff's Exhibit 9, if I am not mistaken, it was that part of the material that was furnished to you?

A. Yes.

Q. Would you tell us please what you actually did, what, or once you had these materials?

A. I ran a series of tests using these after purchasing the steel beam.

Q. Is this the steel beam that was purchased?

A. Yes.

Q. And this is the one you used to run certain tests on?

A. Yes.

Q. Okay and you tell us what you did when you ran the test.

A. Well, I attempted to reconstruct the method of fastening that was used at the time of this accident and I practiced with the gun for a period of time, learning the strength of the charges, I positioned several pins in the beam, in the flanges and in the web and then I screwed the couplings and the 3/8 inch rod on to the fasteners. I then looked at it from two viewpoints. One was what sort of side hooks, side"loads" the combination would take. I wonder if we could look at that other exhibit so that we can have a picture of it?

Q. You mean the -

A. Trapeze, please.

(SIMULTANEOUS VOICES)

Q. This one here, sir?

A. Yes.

Q. Now, Keith, do you have a piece of paper I could set this down on?

A. I think actually the, that would be satisfactory but the 8 inch rod with the coupling would be better if we

could have that I don't know whether we have that or not. It's not in here.

(SIMULTANEOUS VOICES)

MR. SAXER: Do you need a longer piece of rod or something?

MR. BRYAN: No, the same rod that you had. Could we have this?

A. Here it is.

MR. SAXER: This?

MR. BRYAN: Yes, that will do.

Q. This will do, won't it sir, will that do?

A. Yes, to continue, I, as I said, I drove the pins into the beam practicing until I had found a charge that would drive the pin home. Then I fastened the rod and coupling on to the pin and I did a series of tests which were all done by hand, using the scale, so that I would -

Q. Did you put this in a vice?

A. Yes, yes, I did, securely fastened.

Q. That is the eye beam?

A. Yes and then I did a series of tests such that I could determine what sort of loads the combination would take laterally, sort of, what sort of sway loads could be applied to the end of the rod. I also did some brief tests which were set up to determine what sort of torque the coupler and the pin would take. These were done, using just the wrench and I have to indicate

this dramatically here because this contains a pin.

Q. Well can you take that off of there?

A. This is not possible to get it off.

Q. Do you want to use that to get that off? Use the other coupling.

A. (Doing so)

Q. Then what have you got there in your hand?

A. I have the rod which probably is eight inches long and probably more or less equivalent to the one that I used. I have a coupling which couples the 3/8ths inch rod to the pin itself. Threads in the pin and I am putting it on to the pin. I am not planning on, I am planning on running an actual test here. I am not. I just want to indicate schematically.

MR. SAXER: Could counsel advise us what the test will be?

MR. BRYAN: We are not going to have a test. He says he is just putting it in place to talk about it.

THE COURT: He is trying to illustarte.

MR. SAXER: Fine.

A. The coupling was then sunk down to the pin as far as possible by hand to try to duplicate what was done on that day in question. Now after getting that snug down as far as possible I took the scale as to pound force scale.

Q. What?

A. Pound force scale, standard scale that hooks on the end.

Q. Show the jury, you can measure how much it pulls?

A. How much force is involved in the pulling. I applied that to the end of the rod and pulled laterally and I found that if one were to pull back and forth several times with a load level of approximately thirty-five pounds, which is what a man could easily apply, that the pin would break off and on examining the breaks, I concluded that it appears to be a low cycle fatigue break. In other words, one in which you work the material back and forth until it finally breaks. I think probably I should indicate that this is the same thing that happens when you bend a paper clip back and forth.

Q. Could you explain a little further what low cycle means?

A. It means that the number of times you have to push back and forth is small in comparison with the life of the thing. It's not a million cycles, it's not ten million cycles. So this, it's in the neighborhood of one to ten, a hundred, approximately.

Q. But it depends on your -

A. I found that it was something like between five and ten cycles back and forth.

Q. So what, with pounds, of approximately 35 pounds?

A. About 35 pounds, now, -

Q. How far away from the pin?

A. Well that was at 8 inches. Measured 8 inches.

Q. I see, now would the poundage vary if you got closer or further away from the pins?

A. I t would vary, yes. If it were half the distance it would be twice the force, twice the distance would be half the force.

Q. I see, and where did you find the fracture?

A. The fracture always occurred wherever the pin entered the steel beam.

* * *

Q. Now, you became familiar, I take it, through materials I supplied you and eventually also you have heard the testimony as it's actually unfolded here on this stand in the course of the trial and so you are familiar, I take it now, with the mode in which the accident happened, is that correct?

A. Yes.

Q. Okay now, going to this type of pin, let me back up once more. The mode in which the accident happened you are also familiar with the application if we may call it that, that this whole apparatus was put to by Hans HUVA, is that correct?

A. Yes.

Q. How it was designed by him as you heard it in the testimony?

A. Yes, as I heard it in the testimony.

Q. Yes, okay, from an engineer's point of view, is there such a thing as a mode of failure in a particular item?

A. (No response)

Q. If so, what is meant by that?

A. Yes, on this particular item there are, as I see it, four modes of failure for this particular pin.

Q. Four?

A. Yes, four.

Q. What would they be?

A. The two common ones are tension and sheer. And I think these bend down over the four in the testimony but maybe we can talk about it a little bit at this point. Tension is just a pull out which means this breaks the pin off intentionally.

Q. Just pull on it so it pops out or breaks?

A. Yes, or breaks.

Q. Yes, but is that a mode of failure of the pin if the pin pulls out?

A. That's a complex, more complex mode.

Q. But it's -

A. Could have been a combination that would have something to do with the friction between the pin and beam as its' driven which is not a question here.

Q. OKAY AND YOU SAY THERE's two modes that have been talked about here, tension and sheer, is that right?

A. And sheer and sheer has been covered as well as simply like a pair of kitchen shears, taking this off, moving the pin sideways until it breaks.

Q. Okay, we've talked about those two common modes of failure are there any other types of modes of failure for that particular type of operation?

A. Yes, there are two others that are obvious to an engineer and a designer, one of them is in bending.

Q. What do you mean by that, just sort of give us an indication.

A. Well, it's like common sense, if you - if you move, if you move this laterally taking this, I'm holding on to the 3/8ths inch rod now, you move it laterally, I'm putting one side of the pin into the compression. I'm pushing down on one side and pulling up on the other. This is a bending.

Q. That is different from sheer, isn't it?

A. Yes, it is, very different.

Q. Now you are putting one side as opposed to the other into compression when you exert the sheer force on it?

A. No.

Q. But it's possible in many applications to exert some bending force?

A. Yes.

Q. So it's a, the average layman can confuse the two some times?

A. Yes.

MR. SAXER: I object to the question and I object to the answer. The counsel asks this, or purports to ask this witness to testify as to what other people do.

THE COURT: Yes, the question, the objection is well-taken.

MR. BRYAN: Yes I agree I led the witness too much but I am just trying to make it clearer a little bit.

THE COURT: Well, reframe your question.

MR. BRYAN: Yes, well, I'll withdraw the question. It's not that important.

Q. I want to make absqlutely clear there is a difference, is there, Doctor, between sheer and bending, and -

A. Yes.

Q. - you make that -

A. Yes.

Q. - difference?

A. Yes. And unfortunately, it is confused, that's the point. People can confuse these different modes.

Q. Now, is there another common mode of failure?

A. Yes, the one that I mentioned just previously to the

test that I did. The hand test. That is where, that's when you try to put too much torque and push your wrench too hard, you twist it off.

* * *

Q. But, in any event, what is meant by a material being brittle?

A. A brittle material is one that has its yield point close to its ultimate. In other words, you load it up and you, as you unload it, it will come back to where it was previously. It's elastic and returns to the point that it reaches the yield point it will no longer return to its original position. It will be stretched. Plastic or, - the, the, one of the, one of the unfortunate attributes of a brittle material is that you get it up to the yield point, the point at which it begins to stretch, plastically and it is close to the ultimate. It's close to the ultimate load that the material can take. So it will break. It is very brittle. It's like glass. Glass just isn't very ductible and when it breaks, it's all gone. There is no way to stop it in mid-flight.

Q. What about - what, what kind of material would you oppose glass as trying to show us the opposite?

A. Well, you take, you take the steel that you find in these beams which is 36,000 pounds per square inch

material, the yield strength is 36,000 pounds per square inch. This material if you take a little segment of this beam out and put it in a tensile testing machine and pull on it, it would neck down, become very ductible. It would neck down when you pull it out probably to 30 percent of its length.

Q. Would a piece -

A. Before it broke.

Q. - of bubble gum would be an extreme example of a ductible material?

A. Bubble gum goes a little too far, bubble gum goes too far, but it's -

Q. To take an analogy -

A. - steel, yes.

* * *

Q. Say for a nail, for instance, how would they compare, how would these pins compare to a nail in terms of what we've been talking about?

A. The nail is quite ductile, as compared to these pins but of course the nail is softer. It's not as hard and does not have the high yield strength that the pin does and you would never drive the nail into a steel beam.

Q. How about if you tried to break it by bending it back and forth, would it break as fast as these will break?

A. No. No.

Q. How about the force necessary to bend them in the first place, to what I think you said was the yield point, or something?

A. Yes, the force necessary to yield, for example, a nail, is much lower than this, than the yield of this pin.

Q. Now let me make sure that we all understand what you mean by "yield". Explain that again. What is the yield point?

A. The yield point is where the material beyond which the material does not return to its original state.

Q. In other words if you drive a nail into a two by four and push on it, it will come back to center, but if you push on it too much, it will stay there?

A. That's correct, it's a very ductile, it's a very mild steel.

Q. Now, from an engineer's point of view, if one were asked to design a pin such as this HILTI fastener, you drive into steel, from the point of view of a mechanical engineer, doing this sort of work, what problems is he confronted with?

A. (No response).

Q. In this, in his development of a pin like that?

A. An engineer developing a pin like this, would be faced obviously with the problem of getting it to penetrate a steel beam. If that was what he was after, a pin that would penetrate a steel beam.

Q. But it would be of no use to anybody if he couldn't drive it in there, or drive it into the steel?

A. That's right.

Q. So he's got to do what to get it into that?

A. He has to, in order to complete the design, he would have to go to a material or to some kind of configuration that would allow him to drive it into the steel beam and as we see, explosive fasteners like these, they go to a harder material, so that it can penetrate the steel beam.

Q. Okay, what happens from an engineering point of view once you select the material that you can in fact drive into the beam?

A. Then what occurs in the design is what is known as the, in the trade, you trade one property for another. You have traded the property of ductility which is the

ability of the steel nails to bend way over, for the property of being able to drive it into the steel beam, to compensate the fasteners.

Q. What is the significance of that?

A. Well then having done that, it is very significant, because, if you were to drive a mild steel nail into the beam, if it could be done, if it could be done, then that nail could be bent back and forth a number of times and given a very large displacement this, for example, if this were a mild steel nail here and your coupling is fastened on to it and this is a rod, this rod can be bent back and forth and for a considerable distance a number of times before it would fail. The nail. The hardened pin, on the other hand has had a trade made on it.

Q. Had what?

A. A trade made on it. In other words, it is harder than a nail and it has the higher yield strength, but its yield strength is close to its ultimate strength, so that if you move this rod back and forth a short distance you are developing a very high stress in the pin and that will then, over a short period of time, fail the pin. That would be at a forced load.

Q. Well, what do you do as an engineer when you have made a trade and you go to put out a product or somebody's going to use this thing, what do you do with respect to your anticipated modes of failure?

A. You must of course, either design the product to get away from modes of failure, but you must take into account of how the man is going to use it.

Q. Well now, if you design this product here so - it is obviously designed, is it not, to go into a material such as steel?

A. Yes.

Q. And because it is threaded it is obviously designed to carry some load of some sort, isn't it?

A. Yes.

Q. Now, I guess the evidence in the case is fairly clear that with respect to tension and sheer, there was some tests run on this particular type of pin and why do they have those tests? What's the purpose of that?

A. Well, this is to advise any people who buy the pin and use it as to its strength so that it would not put, for example, a larger load on the pin and tension that it had been attested to and was certified for.

Q. I see and the same is true of sheer, is that correct?

A. Yes.

Q. Now, you are aware then, that these test figures as in Exhibit #9, were disseminated and you have seen them, right?

A. Yes, - yes.

Q. Now, with respect to the - a softer material, are those sheared and tension strengths high or low?

A. That would take a quick calculation, unfortunately I

haven't examined that, but I think for example, if there were a softer material, as you call it, or if it were a mild steel nail, the figures would be slightly different. The yield in the ultimate strength of the nail would be probably lower than the pin you see here, yes, but they would be in the same neighborhood.

Q. Yes, okay, now, what do you, - do you - you have told us about a trade-off you get the extra hardness so that you can get into the steel, you get a high tension strength here, you have talked about a trade-off of the brittleness of the material. What do you do, - how do you design around that or, can you design around that in this particular type of application?

A. It, - you can design around it, you can design it so that it takes very little bending. You, if you know what it will take in bending, you can actually design an apparatus of some sort that will produce the bending on the pin.

Q. But suppose you don't know though, all of the application to which the particular pin is going to be put, do you do anything else if you can't design around it all the way for - (SIMULTANEOUS VOICES) -

A. Well, it comes down to the ability of a person to foresee what the thing might be used for and when he foresees that someone might use it, for example, in this application here, he should put some kind of an

allowable on the - perhaps a torque applied to the coupling, torque applied to the pin to keep it from shearing off. He also puts some kind of an allowable force at a given broad length for moments applied to the pin. He has to put that in as a warning to allow the designer to use that information. The designer must have that information in order to do that.

Q. When you say "designer," you are not talking about the engineer who designed the pin?

A. No, the person who is applying, - trying to apply this to the fastening system.

Q. The fabricator of some sort, whether it be an architect, an engineer, or a guy on the job, is that correct?

A. Yes, anyone who might come up with a trapeze or some sort of an application you are to use it.

Q. And I believe it is already in the testimony that with respect to any torque tensions concerning this pin or with respect to any bending forces, there were no warnings in the literature distributed by HILTI?

A. I did not find them, no.

Q. Yes, and I believe there is also other testimony that's already in the case on that and why are these particularly significant, the absence of these two warnings,so to speak?

A. Well, it, to me, it is very significant, because it is foreseeable that you could build a fastener, - you could buld an apparatus of some sort such as this one,

that would put the pin into the bending and now you seem to have to talk about degree of bending. Just how much bending something will take and if you don't know, there is no way that you can design for it. For example, if the pin were glass, we know from just a feel that we have, that if the pin were glass, that it would take a very small force at the top of this to break that pin. We could measure and put it into a piece of literature and say this force must, any forces, side forces, would have to be lower than the force level.

Q. And what about the - from an engineer's point of view, given the manufacturer, such as HILTI, is going to sell the pin and the adapter, what are you confronted with about the foreseeability of using and attaching materials to those?

A. Well, --

MR. SAXER: I object to the question because from beginning to end, I don't understand it.

MR. BRYAN: The doctor understands it.

MR. SAXER: Would he read the question and give me a chance to ---

THE COURT: Yes, we'll have the reporter read the question back.

(LAST QUESTION READ).

Q. Dr. McLAY, is it foreseeable to the manufacturer, such as HILTI, selling the adapter and the pin that somebody

will suspend a weight from a three-eighths rod attached to it?

MR. SAXER: I object to the question unless counsel shows the basis for the answer or some facts upon which the answer will be short of sheer speculation or where it is more than sheer speculation.

THE COURT: Well, I take it based on his past experience in design and both from the industrial world and also as a teacher in this, we'll allow the question.

Q. Go ahead.

A. See, unfortunately, when you design something and you market it, market it to market a combination like this with the pin, threaded and in a coupling, or in an adapter, you have to keep in mind that they are going to be a larger number of people that are going to use this and they are going to apply it in the typical American way in almost any application you might think of and obviously, this indicates that a person, for example, could screw a bolt into it, they could also screw a three-eighths inch rod, they could attach all kinds of equipment to it. Vertically, horizontally, they might even try to put it into the torque, to torque it, to hold something in torque unless they are warned against it. So the person that designs, the person that manufactures it, really has to, - has to keep in mind the human element, the person that is going to use it.

Q. Is this commonly done in the engineering field to keep in mind the anticipated uses of the product?

A. Yes, I have seen it done. This is why I have seen warnings on equipment. "Do not put your hand into the equipment." And you find it on almost every piece of equipment that comes out.

Q. Now, is there some particular significance, - getting back to the fabricating applications of using these pins, is there some significance, some significance and a determinable effect on the person using this product by the absence of the two warnings that we have been talking about, the bending and the torque?

MR. SAXER: Your Honor, again, I object to the question, it seems to call for the purest of speculation not based on any facts that are in this law suit.

MR. BRYAN: I am trying not to lead the witness, Your Honor.

THE COURT: Well, the objection is over-ruled, we'll allow the witness to answer.

Q. Go ahead.

A. Let me have the question again, please?

Q. Well, I'll make it shorter. What is the significance of the - to the user of the product and the failure to warn as to torque and as to bending?

A. It is possible then for the user to exceed these values.

Q. Right, but what -

A. And to cause a failure.

Q. Okay now, let's suppose that at the same time that he is using this product that he is given the tension and sheer strength and he reads those, what is the significance of the absence of the other two?

MR. SAXER: I again object to the extremely general speculative nature of these questions.

THE COURT: Well, of course, this is the ultimate question the - one of the ultimate questions the Jury will have to decide, but in view of the witness' qualifications, we'll allow him to express his opinion about that.

MR. SAXER: He has not been qualified as a Psychologist.

THE COURT: The objection is not sustained, you may proceed.

A. I have to say in that case, it depends on the person's background, I think. If you take a trained engineer he might look at this and then question what allowable movement there was, what allowable torque could be applied. He would have to know something in order to carry out his design and that would probably be the first question that he would ask. If the person is untrained then all manner of things can happen to him. He can look at these figures and be misled, I am sure. I have seen people, - I have seen students that have come to me as an example, just starting out and they don't understand what bending is. I have to explain it to them very carefully. That is my feeling. Untrained

individuals can be misled by these figures.

Q. Well, if the untrained individual gets the two figures in excess of a ton on the tension and sheer, what does that, in your experience as an engineer, as a mechanical engineer, having to do design around the human frailties, what, - in what way is the person misled?

A. Again, it depends on the individual, - the, - as I said, the trained individual would probably not be misled. There is a very good chance he would not be. The untrained individual would look at it and see a strength, a given strength, and assume that, for example, that bending was automatically large, the capability of bending was large. He might assume that a bending was of no consequence and just go ahead and use it. Actually it is, - from the testimony I have heard, I probably can make a fairly strong statement about it. From the testimony I have heard I got that feeling that this is what's happened here, that Mr. HUVA has - (SIMULTANEOUS VOICES).

MR. SAXER: Your Honor, I object.

THE COURT: Yes, the objection to the pending question is sustained.

Q .From your familiarity with this particular pin and the application that you have heard that this pin was put to, the weights involved and so forth, in your opinion, should this pin have been used to fabricate a hanger

such as the one that was used in this case?

MR. SAXER: The defense will stipulate that Well, I will let the question stand.

THE COURT: Yes, we'll allow the Doctor to go ahead and testify on this point.

A. The pin should not have been used in this application.

Q. Now, you heard Mr. HUVA's testimony in its entirety, is that correct?

A. Yes.

Q. You have also testified it has the ability of absence of warnings to mislead a person. Did his testimony, in any way, indicate to you that he in fact, was misled with respect to, ---

MR. SAXER: Your Honor, ---

Q. Let me finish, - with respect to these warnings?

MR. SAXER: Your Honor, I disagree that the question can even be asked here as under our rules I think it is improper.

THE COURT: Mr. Saxer, if you have an objection, simply make the objection.

MR. SAXER: I do object.

THE COURT: Objection sustained.

Q. You spoke about applications such as this, hanging things from the three-eighths rod suspended to the pin and the adapter, can you give us some brief examples of what type of things an engineer should be looking for in the designs of the pin and is confronted with the

problem of going around its weak points?

A. Well, I can point to this particular case on finishing the design of this pin and I can - I can speculate as to how this design occurred, that is all I can do.

Q. I don't mean - maybe I didn't make my question correct or state it correctly. You've got a pin such as this HILTI fastener and you've got an adapter that will adapt that pin to a three-eighths rod, what sort of objects or uses should the mind conjure up as possible uses by people in the market place?

A. Well, with the pin and the adapter if I understand the question now, with the pin in the adapter, it assumes that if the rod is placed in there, you can do almost anything with it, provided the torque is applied in the direction of the threads, you could torque the thing. You could hang something from it. You could put it through a box and put a bolt on the other end and fasten it to a wall sideways. A large number of applications.

Q. In fact, the imagination can go right along?

A. Yes.

* * *

By Mr. Bryan:

Q. Doctor, we'd like to continue. You have explained at some length the pin and the adapter and its application to the steel and various tests you have run and so forth and observations you have made. Can you tell me, in your opinion, did the adapter and the fastener at the time that they were sold by HILTI, to RENZI ELECTRIC in this case, did they contain, in your opinion, any defect?

A. The combination of the two of them and the lack of information in the manual leaves me to believe to answer, "yes".

Q. And the lack of information being what, precisely?

A. The lack of bending and torque allowables.

Q. The figure with respect to those two, is that correct?

A. That's correct.

Q. And could you tell me please, in your opinion, what caused this accident to happen?

MR. SAXER: I object.

THE COURT: Well, we'll allow the witness to answer this.

A. From the testimony that I have seen, looks to me as if the pin broke causing the pipes to fall off and injuring the man.

Q. Okay and in your opinion, what caused the pin to break?

A. Well, we have one or two possibilities. We are not really sure. One of them is that there was some movement which caused the pin to break in bending. Probably in low cycle fatigue. The other one is the possibility of when they were put in, they were torqued down too tightly and the pin was twisted.

Q. Now, both of these?

A. There is a third possibility.

Q. What's that?

A. Combination of the two.

Q. I see. Now, both of these modes of failure, the twisting and the bending forces, you have testified to before and these again are the two modes of failure that were left absent in the literature as to warnings by the manufacturer?

A. Yes.

Q. Now Doctor, you're, - when you say there is a possibility of one or two, either one or two of these modes of failure, you feel probably caused the accident, or a combination of both, do I understand you correctly?

A. Yes.

* * *

fastening problem between them. this is why we had to study fractures, in order to -

Q. This paper here sounds more like a materials question or a metallurgical question than a fastening question.

A. As a matter of fact, the title of the paper is Insight from the properties of bone.

Q. Properties of what?

A. Properties of bone which is a composite material. We are looking at nature to see how it actually designs an optimum structure.

Q. Now, during the course of your direct examination you were using the phrase, "brittle, ductile, hard," now, it would be obvious that this fastener, to go into this beam, this fastener would have to be extremely hard?

A. Yes.

Q. Harder than the steel?

A. Yes.

Q. Can something be extremely hard and not be brittle?

A. It's a matter of degree, actually.

Q. All of these things are a matter of degree?

A. Yes, it's a matter of degree. You, - you increase the hardness and you make a trade. You make a trade on brittleness, you make it more brittle.

Q. By increasing the hardness you increase the brittleness, as well?

A. In general.

Q. In general?

A. IN general, yes.

Q. If the pin were too brittle, would it not shatter when the tool was used to try to put it in the steel, -

A. Yes, - (SIMULTANEOUS VOICES).

Q. It if were actually a glass pin and those have brittle characteristics but including those of steel, would shatter?

A. Yes, yes. Unless one went and worked on the glass, I suppose. I'm not saying that you couldn't drive a glass pin into a steel beam because I would imagine that as soon as I say that it can't be done, someone will come along and do it. But by some surface hardening process, this is what always happens.

Q. But by and large, if you could drive a pin into a steel beam you wouldn't right off think it was extremely brittle or it would break in that application or shatter and break?

A. It is difficult to answer it. I wouldn't know the modes of failure of the material you are talking about. I wouldn't know whether it would shatter in a million pieces, I wouldn't know whether it would break into two parts. It's an extremely complex problem.

Q. Let's see if we can get into the problem by going with the concept of the low cycle fatigue which you discussed. Suppose that you did have a pin made out of glass and suppose that you were able to get the glass pin into

the beam, would you expect, when you performed your tests and when you moved the rod, that it would probably break on the first half cycle, half cycle, as opposed to the full cycle?

A. Yes.

Q. And in your tests, actually these pins would go the full cycle before the broke. None of them broke on a half cycle, is that right?

A. Not that I recall. Those that I tested with, with the metallic washers, generally it took eight or so half cycles in order to fail.

* * *

Q. I'd like to talk briefly on the question of fasteners and fastening, generally. You started off when you talked here by indicating that there is a lot of different types of fasteners, nuts and bolts, fastener, glue is a fastener, rivets, stop me if I say something that is not a fastener. Nails, HILTI studs that are in front of you, our competitor studs from other companies, staples, welding, those are all fasteners?

A. Yes.

Q. And I have left quite a few out?

A. (Nodded).

Q. I mean this might be two or three hundred items long?

A. Possibly. And you neglected broaching and a few others.

Q. Which one of those fasteners in that long list of the ones that I gave you and the ones that I did list, were any of those state for me the ones that are designed to accept bending movement.

A. Which ones are designed to accept a bending moment?

Q. Sure, for example, a bolt. I think it's Defendant's "H", is

that "H"? That's a fastener?

A. Yes, Defendant's "F".

Q. "F". Thank you. Is that fastener, from looking at it, designed to accept a bending force or a bending moment?

A. It will.

Q. Did that, the screw there?

A. Yes.

Q. It accepts a bending moment?

A. Yes.

Q. Does it accept a large bending moment?

A. I don't know. We would have to test it in order to find out.

Q. You can tell -

A. But it's a number we could measure.

Q. You can also tell some things about some things simply by looking at them, do you agree with that?

A. A feeling, yes. If this, on the other hand, if this is a different material, steel for example, you might throw me off. I don't know whether you are giving me some other material other than that.

Q. Well let's put the fastener right inyour field, you described a machine bolt as a fastener. Isn't that what it is, a machine bolt?

A. All right.

Q. And that's not the type of bolt you buy in Woolworth's, that is a machine bolt of sterner stuff, isn't that correct?

A. I don't know. I don't know if Woolworth's would have specifications that would be placed on the bolts.

Q. Have you ever bought bolts in Woolworth's?

A. I've bought them in many hardware stores.

Q. Did any of the bolts you have ever bought anywhere, cover specifications?

A. No.

Q. That's what I thought. What are fasteners used for?

A. To fasten things together.

Q. That encompasses quite an area?

A. Yes.

Q. Would it be fair to say that literally every day thousands and tens of thousands of things are fastened together with fasteners in the construction industry?

A. Yes.

Q. Would you agree right off, would you agree with me that there is many, many, many right ways to use a fastener and a million or more wrong ways to use a fastener?

A. Yes.

Q. Millions of wrong ways?

A. Yes.

Q. Now, in general, in the construction industry, in the business of being a mechanical engineer, would you have to agree that fasteners are not used in places where there is a bending moment?

A. No.

Q. They are not used or they are used?

A. I know for a fact that fasteners are used where there are bending moments. We would like to eliminate them we would like to reduce them, but they still exist.

* * *

Q. You indicated in your answer that fasteners take a little bending, isn't that what you have just said?

A. they can, yes.

Q. As a general rule in the construction industry or in the engineering profession, do you create designs where you transfer the bending to your fasteners?

A. In general you would probably design around it.

Q. What do you mean by that?

A. You have to design to eliminate bending.

Q. I agree with that completely in the business.

A. Or to reduce the bending to an allowable limit.

Q. In the business and in your profession, you design things so that the bending will not go to the fasteners. Is that what you just said?

A. That's the idea.

* * *

Q. Would you say as a matter of practice in the industry, and in your profession that it is in fact, Improper to make designs where bending loads are transmitted to the fastener?

A. In some cases it's unavoidable, unfortunately.

* * *

Q. Now in his work as brought up to date, is that bolt designed to accept a bending load?

A. It, I have trouble with your question. I don't see what youare trying to get at. The bolt will take a bending load.

Q. How much?

A. We don't know. We have to test it.

Q. But is it designed though, to take a bending load?

A. It inherently has it.

Q. Well, let's see if we can give it a use. Now, let's suppose that this practice piece is the same in all respects with

this, and let's suppose they elected on the job, Mr. HUVA, that they elected to drill two holes. One there and one there. And let's suppose or say he then elected to put that bolt through those holes to screw an adapter on it and run the three inch rod. In other words this bolt would be the substitute for this pin and you could still do it the same way that these things - in that, these two things are the same thing, aren't they?

A. Well, they perform a similar purpose.

Q. And this is no more designed to take a bending load than this is?

A. But you see, -

Q. In this use?

A. - you must tell me what that bolt is made of. What steel is it made of? If I am going to design that fastener, you've got to tell me what steel that is.

Q. Well, we'll come back to this. Would you now say there is material on earth that you could use to make a six inch shank to sustain the bending loads that are inherent in this design? Any material you -

A. You have to define shank now.

Q. The portion here that takes the force of the edge off the beam at the top of the beam. Here, where they break off.

A. A six inch shank?

Q. Did I say six?

A. Yes.

Q. One-sixth.

A. One-sixth?

Q. The same as this shank.

A. But you see you can't argue absolute. It's relative. It's relative. I, for example, that bolt that you used right here, if it's a mild steel bolt, it's a mild steel bolt. Now, I would expect that you would be able to cycle that back and forth many, many times before it broke and then inherently it is better than the pipe. It appears to be better.

Q. Do you suspect from looking at this that this will cycle many more times than this?

A. I haven't tested it but I am saying if it's a mild steel bolt, my guess is that it would behave that way.

Q. But you're guessing.

A. I'm guessing.

Q. Of course.

A. But from experience I have to say that.

Q. If I took your vice grips in one hand and pliers in the other and went like (sound), and that bolt broke, then you would have guessed wrong?

A. Well, it's different material than I thought it was.

Q. Well, let's assume it is a nice, hard steel material, - strike that question. Let me go back to the question that I asked I don't think you have answered it. Is there any material on this earth that one can use to make a

fastener, of any kind, with a one-sixth inch shank, that would accept the bending loads imposed in this trapeze, any material on earth?

A. I don't, well, I have a, only a guess as to what the bending loads are on the trapeze. My estimates are based on what the man is able to apply to it and I apply approximately thirty-five pounds to, at eight inches.

Q. Now, is there any material on earth, of any kind, that could be used to make a fastener, this small, that would accept the bending loads that are imposed there. Don't you understand that question?

A. Say it again. Say it again. You're asking me to invent some material, I think, or to find a material that will do this job.

Q. Actually you told me about this. Let me take a minute and I'll find it. We'll see if we can find that and discuss it, Doctor. Now you, you indicated that there are many, many right ways and wrong ways to use a fastener, the same will hold true for hanging a pipe, there are many right ways to do that and many wrong ways to do that? Is that right?

A. Yes.

Q. Doctor, I think I can fit the business of materials in a little later on so can I ask you before we do change the subject thought, that, can I get you to agree that it is a general practice in the industry, fasteners

are not used in places where there is bending to be imposed?

A. No, I just, I said before that I can show you an instance in which the fastener will be bending.

Q. Which fastener is that?

A. A bolt.

Q. Show me the instance.

A. I wonder if I can have the blue book out of my brief case.

Q. What book is this?

A. This is a manual of steel construction, seventh edition.

Q. Before we go on with that would you agree that that is an authority in the field of construction engineering?

A. It is, to a point, but I am sure that there are other people that will come up with better methods at one time or another, these are standards, more or less.

Q. Why do you use standards, one might say, why do you use standards on virtually every job performed on every construction site in the United States has one of those books?

A. Certainly, I wouldn't be able to say that, I don't know what every job foreman has but every, certainly every engineer who works with this type of thing has used this book at one time or another.

Q. Go on, Doctor.

A. Now, the pages that I am concerned with are pages 4-B in the hand type connections in which we have

fasteners loaded intentions it says, if you look at this you will discover that, - I need to make a sketch, may I?

Q. Let me see it.

A. All right. Here, I have a "T" section for example, -

Q. Well, -

A. - as applied by two bolts, two fasteners on the side. Now, if the "T" section were perfectly rigid, yes, these two bolts would only be tension, but the "T" section, according to the research done at the University of Illinois of course, is flexible and it gives to a certain extent and in the process we would put the bolt slightly into bending. It is a small bending, one to produce the bolt and if the designer wanted to do a good job he would have to know the diameter of the bolt and he would also have to know what that bending moment is, which he can compute then he would have to know the allowables for that bolt, you would have to know what that bolt would take in bending before it became dangerous, which might be nominal.

Q. And he would look these things up in that book?

A. Yes

Q. Where?

A. (No response).

Q. I mean that book is full of information.

A. Yes.

Q. From cover to cover.

A. Yes.
Q. There's millions of things of information?
A. Yes, certainly.
Q. Are there any charts on bending moments anywhere in that book?
A. That is something you compute, generally.
Q. With the section modulus?
A. The section modulus you would compute for certain sections, there is a formula for that.
Q. The weight charts for axial weight is something you can compute as well, isn't it?
A. I'm sorry, say that again.
Q. Would the figures that are on this piece of paper that you were shown here, they are computed too, at least they are tested, but maybe I am wrong on that.
A. They are tested. This is the other side. This is very important, - this is very important. This is the other side. Here you are using this information, you are doing a design here you are providing the information for the design. These are two different things.
Q. Now, the bending moment you are talking about on that page there, is, as you say, very slight bending moment?
A. Yes.
Q. And it does go to the fastener?
A. It's fastener is in bending.
Q. It's not a large bending moment?
A. Well, I, you know, I would have to look at the "T"

section and I would have to find out the beam thickness, the bolt size and everything else in order to compute it. I'm sure if the bolt size were too small then we might run into trouble of bending.

Q. As a general rule however, it is not very many places or not very many applications that are used to put bending moment on a fastener of any kind, isn't that true?

A. I don't know how I can answer that. I don't know of them. I haven't surveyed the whole thing. I see this one, this is fairly common.

Q. I'm talking about a general principle of engineering.

A. What's that?

Q. Is there a general principle of construction and engineering that you did not place in your, you do not design systems that place more than a slight bending load on any fastener under the sun?

A. But there you see you are talking about degree. Slight load. We can never tell, we can never tell, I'm talking in general terms.

Q. Is this a slight load when you move that back and forth?

A. Apparently from my experience of testing experience I have, yes.

Q. This is a slight load?

A. What you touched, it's probably a fraction of -

Q. No, I mean the movement here in your test when you applied the forces here that did not create a slight load, did it?

A. No, it was a considerable -

Q. Let's talk in terms of that load as our base point, then we won't get bogged down on what is a slight force and what is a big force. As a general rule, as a matter of good solid engineering and construction practice, one does not design systems to accept bending loads of the type that are imposed here, now isn't that true, plainly and simply?

A. Well, -

Q. Would you answer that one question in "yes" or "no", just that one?

A. The -

Q .Can't do it?

A. It is impossible to do it because you are talking about degree. It is very difficult to do this.

Q. I'm talking about this application, this one force here?

A. If you tell me what material the pin is made of then I can compute for you very simply, exactly what a small, a slight bending moment is. Until I know the material, I don't know what a slight bending moment is. I can't tell what it is.

Q. Doctor, I think perhaps in my mind and I hear the question I am asking that it is coming out wrong. Let me try one more time. Do engineers design systems that transfer bending loads of the magnitude that exist here to their fasteners? Did I get it right, that time? Do you understand that question?

A. Engineers with the proper information would never do that.

Q. Thank you. With any kind of fastener?

A. (no response).

Q. With any kind of fastener, not just the HILTI fastener?

A. We have to look at the case by case, I am sure.

Q. All right well given the same case I gave you a moment ago we will give the case where we construct this trapeze with two bolts instead of two HILTI studs, we can do that, all we need is a drill?

A. Yes.

Q. Now, we could build -

A. Take a -

Q. - this with this. That case. What about that case?

(SIMULTANEOUS VOICES)

A. Well, let's go through the design process just a little bit. The engineer, if he were going to specify that means of fastening, would specify on the drawings probably drilled to suit worker or drilled to suit foreman.

Q. Is this in answer to my question?

A. Yes, I'm sure that it is. It just takes time to lay out the answer, that is the problem. He would specify --

Q. Could I ask you a simple question, could I rephrase it simply. Would you use this bolt to make this rig? That's a simple question.

A. Not from the knowledge I have now.

Q. YOu didn't test that bolt, did you?

A. No.

Q. Now there's certain things about that bolt that are apparent from simply looking at it. For one thing it's very small. That's apparent. It's approximately one-sixth of an inch across there. That's a fact?

A. Yes.

Q. It would take sixty of these stood up like that to fill a square inch. It's very small. That's apparent. Is that correct?

A. Yes.

Q. And you would not use it to construct that system, test or not?

A. I would not, no.

Q. I think we've got there. It was hard but we got there. Now, we talked about fastening and fasteners, let's talk about pipe hanging. I think I already asked you this but to introduce the subject, let me ask it again. May eight ways to hang a pipe and probably a million wrong ways to hang a pipe.

A. You are asking, are there?

Q. Yes.

A. Yes.

* * *

Q. You don't fail to see how you could break it, though?

A. I can see how you can break it because I have done it.

Q. Even before you did it you could see that it would break?

A. Yes, I had a feeling, yes.

* * *

Q. Okay. Common sense was the phrase you opened your dissertation on bending, the force, the same common sense that I have, that you have and that Hans HUVA has, that type of common sense is what you have in mind?

A. Yes.

MR. BRYAN: Wait a minute, I've got to object to that, I'm not sure who has what common sense.

A. With the difference of degree, obviously, I have more training in this particular area than you have. You have more training than Hans HUVA.

Q. In common sense?

A. In the use of common sense in engineering problems.

Q. By the way, would you say Hans HUVA was a trained man, at least in the use of this equipment? I believe he said he had 25 years of experience that he had used this equipment before in many applications. Wouldn't you AGREE from hearing that that what we had on the stand yesterday was the fact or in fact, a trained man, from the sense you used the phrase?

A. Do you want my opinion as to his qualifications as a superintendent, is that what you are after? He appears to be a good superintendent, he appears to know what he is doing.

* * *

MR. SAXER: Well, actually in talking about warning, you were talking about a difference between the trained and the untrained. Mr. HUVA's over here in this category he is the trained and apparently so is Mr. VALLIERES he is also trained. He is not the untrained that you refer to.

MR. BRYAN: Is that a question?

Q. Yes, it is. It is not the untrained to which you refer, is that correct, neither Mr. HUVA or Mr. VALLIERES?

A. It depends on what he is trained in before I can answer that. Define what he is trained in.

Q. You used the phrase, what do you mean?

A. HUVA is a trained superintendent, obviously, I would say that, and this is going to answer your question, I'm sure. VALLIERES is trained millwright or whatever he is, you would call him an electrician or an electrician's helper, or whatever he is.

Q. Now he was a licensed Master Electrician with thirty years of experience.

A. (Nodded)

Q. He was trained?

A. Yes.

Q. He and Mr. HUVA collectively for fifty-five years then of installing conduit in buildings, they are trained in the installing of conduit in buildings?

A. Yes.

Q. They are the trained, not the untrained?

A. I don't know how much experience they have in, collectively, how much they interacted, it appears that way.

Q. Now sort of as an aside you said something about engineers being involved in suspensions before; engineers are involved in overhead suspensions, air suspensions, aren't they?

A. Yes.

Q. And for good reason?

A. Yes.

Q. And that's because that suspension might fall down and hurt someone or kill someone, isn't that correct?

A. Yes.

Q. Is that correct?

A. Yes.

Q. Engineers have to be qualified for that reason?

A. Yes.

Q. How are the engineers involved as a general rule?

A. They do the design.

Q. Engineers, where does that design come from? How is the design expressed in the actual -

A. In the drawing.
Q. The specifications?
A. Or specifications.
Q. Have you had the opportunity to review the specifications for hanging conduits in air in projects?
A. In that project no, I have not seen the drawings or the specifications.
Q. But you would agree that those specifications are in fact, drafted by an engineer for an extremely vital reason?
A. Yes.
Q. You would not agree that a mechanic in the field should change the engineer's specifications to suit themselves?
A. (No response).
Q. With a heavy overhang three or 400 pounds?

MR. BRYAN: I've got to object to that. Your Honor, because I think it is going to say what specifications, under what circumstances. I am aware that Mr. Saxer took a deposition where the testimony was the exact reverse that the mechanic in the field would be allowed to change.

A. I think, if I remember reading Mr. Weissa, is that it, Weissa?
Q. I'm asking you?
A. - Is that the deposition?

THE COURT: Just a minute, we are going to save time if you will listen to the question and counsel give the witness an opportunity to answer after the question is propounded and I think you will probably make a better record.

Q. I'm not talking about Mr. WEISSA or anyone else, I'm talking about you. Have you not told me already, under oath, that mechanics are not left to this decision, that this is an eingeering decision. Do you remember telling me that and do you remember telling me that under oath?

A. I don't recall exactly where it was but that is my position.

Q. It would be more fun for you to tell me somebody else's position based on what I asked you?

A. No, no, it is serious, it is very serious. An engineer makes the specifications and he will put down on the drawing, specify something, he may say, "or equivalent".

Q. And equivalent means equivalent in all different ways. It means an equivalent in weight and equivalent in sensible design?

A. I would assume you could say that in general, it is difficult to say what that does mean, exactly. Probably means carried load, load of carrying capability.

Q. But this is an engineering decision, how to hang it and how to fasten it, if it is going to be heavy and it is going to be overhead?

A. Yes.

Q. An engineering decision or an engineer says you are not a mechanic.

A. Yes.

McLAY - cross - SAXER

Q. Not what anybody else says?
A. That is my position.
Q. Are you aware of any other engineer who has a different position?
A. I haven't questioned very many people about it.
Q. Now, if an engineer, now, as you said, one should, should he get involved with this, one of the first things he would have to know is how much weight am I going to hang, right off, he would have to have a system that would accept the amount of weight that he proposed to hang. Question One. Isn't that right?
A. Yes.
Q. Now, if an engineer were going to check the weight that he proposed to hang, to see if the fastener would do that, he would go to one of these charts and he would look up and say, well that is the way we will hold, I think I can use that. Now, sheer is not an issue here, is it?
A. Doesn't appear to be.
Q. A sheer, the only force we are talking about in this chart is the tension force and that is this force, pull it straight up on the chart?
A. Yes.
Q. Sheer is something else, doesn't seem to be involved in this application?
A. (Nodded)
Q. Is that correct?

A. That's correct.

Q. But in engineering first, right off, he would look up how much weight would my system or fastener call, that is the first thing he would do, isn't it one of the first things?

A. Yes.

Q. But that wouldn't end his inquiry, would it?

A. (No response).

Q. For the engineer?

A. He would, I would think that he would look it up in, that he would look up the details on it, yes.

Q. You think the engineer would probably consider what bending might be imposed in the design system?

A. I would think so.

Q. He would have to, wouldn't he?

A. Yes.

Q. That is what he is an engineer for, is it not, is that not correct?

A. Yes.

Q. An engineer did, in this project, did exactly that, he wrote specifications on what to do, is that correct?

A. Yes.

Q. That isn't that, is it?

A. It's the substitute. It's not that.

Q. Substitute, well, we'll get back into that. Now, there is absolutely nothing unusual is there in this process of an engineer looking up on the chart like this how much

weight it will hold, that is this common thing, nothing unusual about it at all?

A. Yes.

Q. And when you look up the chart to see how much weight your fastener will hold what do you expect to find you expect simply to find a failure that tells you how much weight it will hold, is that correct?

(No response).

Q. Doctor, you think I need an exposition here, you seem to be getting, ---

A. No, I, I'm thinking about it, because I am thinking of the other example of the bolt that went into bending. He would have to know something about the material properties of that.

Q. Steel bolts.

A. Mild steel bolts?

Q. No, that's not it, machine bolts.

A. Machine bolts, which are, we don't know what the ultimate strength of the bolt is without test. Without looking at the materials, looking at the specifications.

Q. You don't know what the ultimate strength of the HILTI stud is either. You didn't do anything about testing the metal, for example, of that stud?

A. No. That wasn't an issue here.

Q. When the engineeer goes to the chart to find out how much weight this system will hold he's not looking to find out anything about that, is he?

A. He might have a chart.

Q. I'm not asking you that. I'm not asking you how many charts he has, I'm asking you when you look up weight you don't mean to look something else up, when you do that, that would be horribly inefficient to look up weight to find out something else, do you understand me?

A. For the bolt for example, he might know the allowable weight that the bolt could carry.

Q. Sure.

A. He would also know the materials, he'd know the ultimate strength of the material, for example. And avoid putting that bolt into very much bending to get the bolt bent up to that ultimate strength.

Q. This bolt's ultimate, and any other bolt of any material, - I'll skip it and go on.

A. You didn't complete the question. I didn't understand it.

THE COURT: Well, he's withdrawn the question.

Q. If in fact one did look up, - I have another bolt and it is the same as yours, if in fact one did look up this bolt and found out that it held ten thousand pounds of axial weight that figure doesn't say at all how much this bolt will bend, does it?

A. No.

Q. Doesn't say a thing about it and it is not meant to, isn't that correct?

A. That's correct.

Q. And when you look up to find out how much weight this will hold you don't mean to find anything out about how much it will bend, those are clear, simple, agreeable propositions, are they not?

THE COURT: Well, you've got about four questions in there.

Q. Well I'll ask all short questions. You don't mean to find anything about it when you look up a weight chart for this bolt?

MR. BRYAN: Objection, Your Honor, because he hasn't specified the applications he's talking about?

THE COURT: Well, we'll allow the witness to answer the pending question.

A. I started to tell you earlier about this design.

Q. No, no, no.

A. Now I want to, (simultaneous voices), I want to spend two seconds in describing the design. If I were to use that bolt on that design, then I'd look up the load carrying capacity of the bolt. I would have to find that out from some place.

Q. From the manufacturer?

A. From the manufacturer.

Q. The manufacturer of this bolt, for example, would be likely to have the chart just like that showing how much weight it would -

A. Correct, he would also tell me what the material was.

Q. Hard steel.

A. Otherwise I cannot use, I cannot do the calculations for the bending moment on that.

Q. But when you look up and see how much weight it will hold that doesn't tell you a thing about how much it will bend?

A. (No response).

Q. That is another "yes" or "no".

A. Yes, that is true.

Q. I want to take a look by way of further background. We've gone over fastening, pipe hanging, some materials, now let's talk now directly about the system that was employed here. The way this is set up this trapeze is pretty stiff?

A. Correct.

Q. It's stiff perhaps not using an engineering word.

A. From the standpoint of putting your hand on it and pushing it, yes.

Q. Is this beam with, in a vice or part of a building, so that, if it did move at all, it would be stiff?

A. Stiff from the standpoint one would apply from the palm of your hand.

Q. Is there a better word than stiff? I'm sure there must be.

A. That is a good one.

Q. Okay, we'll stick with "stiff." Where is the force going in this system if this thing were to go, where is that force going?

A. Well -

Q. Well it starts here.

A. How is the load carried into the beam, that's your question. It goes down into the rods and sheer it goes into the beam, in sheer.

Q. We're missing something. Somewhere between the rod and the beam that passes through something else, what's that?

A. It passes through the pin.

Q. And -

A. It puts the pin into sheer.

Q. That is a fastener?

A. Yes.

Q. It is a fastener?

A. Yes.

Q. And the force goes here to the load and hits the fastener actually the force never gets to the beam in this application?

A. It has to otherwise it would fly off.

Q. It did.

A. If the thing were in fact, it would have to force, would have to be anchored to the beam but that is a technical point.

Q. Now in this design system or this system that Mr. HUVA designed, several forces are going to be involved when the system is finally constructed if he gets that far with it, you are going to have the force of the conduit

itself, for example, being slid that could or would create a force?

A. Yes.

Q. Quite a force of 120 pounds?

A. It probably would be a feeling, yes, that it would be.

Q. Now there's something else I don't think I asked Mr. HUVA. After these conduits go up, an electrical conduit, it is true, isn't it, that the worker has then pulled wires through their conduit, sixty feet long, - were you here when Mr. HUVA testified?

A. I believe he did testify to that, yes.

Q. When it was all done, it wasn't, wasn't it the intent to pull large construction wires through that tube from one end to the other?

A. You talk about wires, what they are like, I don't know.

Q. Now, the force of this conduit or the wires that I'm talking about pulling through, when that force is exerted here, that too, will ultimately be transmitted to here as a bending force?

A. PUlling force, the wires through the conduit, yes.

Q. Or pushing the conduit along there itself, or under there, I suppose?

A. Yes.

Q. That is also a bending force or the force of a worker, workers hand, 35 pounds?

A. 25.

Q. What was the amount of weight you said?

A. 35 pounds.
Q. So the force of a hand here, 35 pounds, that also transmits a bending force?
A. Yes.
Q. Now, aside from the question of what the conduit might do to this or what a worker might do to this, there is also, when the system is built itself, there is a load of inertia in this conduit, isn't that true?
A. Yes.
Q. That means, and I'm telling you what I think you told me once, that if that conduit started to move, just a little bit that it tends to keep moving?
A. Yes.
Q. And it will cycle?
A. Yes.
Q. In other words, it will be going back and forth on these trapezes?
A. Yes.
Q. That is going to create quite a force up here, isn't it?
A. Well, we don't know the amplitude of this.
Q. It wouldn't have to be much of an amplitude to break it, would it?
A. No.
Q. Your tests, for example, you broke these with a very small amplitude?
A. I broke it with 35 pounds, six to eight half cycles, yes.

Q. Small amplitude, in other words, you didn't have to move it far?

A. I don't know what you measure by "far". I probably moved it a couple of inches along the side.

Q. Some of them broke at that range and some of them broke less?

A. I don't think there are ever any broke at very, very small amplitude, no.

Q. Now this force, the conduit putting, installing the conduit the worker's hand, the inertia of the system itself, let's use the example the worker's hand. The first 35 pounds of force applied by a worker, right here, it's something else when it gets there, isn't it,up here when the force gets - (simultaneous voices) ---

A. In what respect?

Q. Well, for example, when you apply the force here, when that force is finally transmitted here, it's called a stress, is that right?

A. It goes through a sheer force but it is still 35 pounds.

Q. But it also creates a stress, right there, a bending?

A. It creates two stresses, a sheer stress and a bending stress.

Q. And it stresses something that is a little different from the concept of the force?

A. It is a force within an area.

Q. Actually, any pipe hanging system that had an 8 inch rod, a moment arm, a lever, would moment arm be the best?

A. Moment arm is probably a good one. One that we would use in Sophomore mechanics.

Q. Thank you, Doctor. Any system that had an 8 inch rod, -

THE COURT: We will take our recess at this time and give a recess to the Reporter.

(RECESSED FROM 3:14 A.M. UNTIL 3:30 P.M.)

Resumed by Mr. SAXER:

Q. Doctor, we left off talking about stress and we got on to talking about stress and in discussing trapeze systems here, specifically, now the question I asked somebody previously in the case, I'd like to ask you and that is it is down to here that is the pipe hanging system, this is the way the pipe hanging system that was designed here was fastened, isn't it?

A. Yes.

Q. You could -

A. That is proper, I would agree with that.

Q. You could use this same system and fasten it in any number of ways?

A. Yes.

Q. Any number of other correct ways and any number of other incorrect ways?

A. Yes.

Q. So what we are talking about here is really the manner of fastening?

A. Yes.

Q. Now any pipe hanging system that has an eight inch moment arm is going to create very significant stresses at the point of the fastener, isn't it?

A. (No response).

Q. If those stresses reach the fastener?

A. Which now, the sheer, or the -

Q. We are talking about the stress I believe, expressed in pounds per square inch that is created where the pin is at the top of the beam surface that stress that is created when you put your force down here, probably again missing a word.

A. Depending on the load supply and so forth, yes, that produces significant stress.

Q. Well, let's talk about the 35 pound load we can keep coming back to that as a basis figure because you use that in your test, with a 35 pound load on the eight inch moment arm, any fastening system is going to transmit a lot of force up to the fastener, if that fact, the hanging system, those forces will go through the hanging system to the fastener unless those forces are accounted for in the design?

A. (No response).

Q. Is that right?

A. Yes.

Q. And those forces will be quite large, actually?

A. (No response).

Q. We agreed, I believe, that they increase as the rod gets

longer?

A. Yes.

Q This design is not a, this design does not account for that force, does it?

A. It does not account for a force which is large enough to cause it to fail, no.

Q. This design does not account for what you might call very minimal force of 35 pounds down here?

A. It, well that one would take 7 pounds laterally and it would take approximately six to eight strokes.

Q. Well, that is actually assuming that you apply your forces equally across the unistrut?

A. Yes.

Q. You could also move the unistrut across, force one rod, one fastener, even though it is a trapeze?

A. Possibly.

Q. Such as one might do if one were to bump the rod with the concrete?

A. Yes.

Q. Now, you said on your direct testimony that this system is bad, it is no good, isn't it?

A. Yes.

Q. And that is simply because in contravention of these professional principles you talked about earlier, this design lets the bending forces be transmitted to the fastener?

A. Yes, it lets the bending force build to a level that

it should not be.

Q. Now again if we change that system and made it with bolts and made no other changes that same bending force would be transmitted to this bolt as well?

A. Yes.

Q. In other words it is the system here that's a failure because the system is not preventing the bending forces from reaching the fastener of any kind?

A. That failure is really is the entire system, including the failure is the entire system, really.

Q. But you would expect the same failure with a different type of fastener?

A. No, I would not.

Q. Now would you expect the same failure with this bolt?

A. No, I wouldn't. If that's a mild steel bolt, I would not.

Q. No, it's not. It's a hard steel.

A. All right then if it's a, the same material as the pin, then, I would expect it to behave in the same manner that the pin did.

Q. It's not the same material, all steel materials vary somewhat in the industry, do they not?

A. Yes.

Q. For different purposes, they make them with different alloys?

A. Yes.

Q. With different heat treatments, I know that's not the right

word, but the steels are made differently?

A. Yes.

Q. But most steel has more in common than it has different, doesn't it?

A. I don't know how to answer that one.

Q. I'll withdraw the question, I don't think it was clear, but in any event, the way that system is designed there, all the bending forces ultimately reach the fastener?

A. Yes.

Q. The HILTI fastener, or any other fastener, such as this, that you might use?

A. Yes.

Q. Any other one six inch fastener, as this?

A. Yes.

Q. Now, there are many other ways to have done that, isn't that correct?

A. Yes.

Q. There are literally/undreds of ways known, available to or in the industry to keep these bending forces from being transmitted to the fastener, isn't that correct?

A. Yes.

Q. Just for a simple example, a device like this that we have looked at before, Mr. McLay, does something to keep t'e bending forces, I think I have it upside down,from going up the rod?

A. Yes, actually the bending moment is reduced by that.

Q. It's reduced by quite a bit, in other words, the bending moment in a system, if this were used to hang pipe, would pretty much end here?

A. Until the pipe bound.

Q. Yes, (simultaneous voices)

A. - then you would have a similar problem, when the pipe bound. (Simultaneous voices)

Q. Okay, this would keep a lot of those forces from going up a rod and into fasteners?

A. Yes.

Q. This is one of let's say a thousand ways, -

A. Yes.

Q. - and this is one of a thousand ways to keep the forces from going to the fasteners?

A. Yes.

* * *

Q. I'm glad you discussed C clamps, we have discussed two right ways to do it, this would be a so-called right way to do it?

A. Yes.

Q. The pipe hanger I showed you would be another so-called right way to do it?

A. From the standpoint of safety, yes.

Q. C Clamps would be another so-called right way to do it?

A. Yes.

Q. Aren't there businesses and industries that have catalogues that go on for pages and pages just full of right ways to hang pipe?

A. Yes.

Q. Steel City Kelor, could be one of those catalogues?

A. I have heard of them, yes.

Q. Let me show you one of the catalogues, Defendant's "B" in evidence. Is it in evidence? I'm going to show you a booklet and ask you if you can identify it for us? What is it, in a general way?

A. Yes, this is - I don't know what this is. This is

Midland Ross Corporation, I have done some consulting for them in another branch.

Q. It is a catalogue?

A. Electrical Products Division. There is no label or anything on the outside. Yes.

Q. It is in essence, the Steel City Kindorf catalogue for hanging supplies?

A. (No response).

Q. Is that correct?

A. I don't know what it is, whether it is complete or not, but it appears that way.

Q. And from cover to cover this catalogue is essentially full of devices that one could go to a construction supply store and buy and use them to hang pipe in a right way?

A. Yes.

Q. And this isn't the only one, there is GRINNELL, is that correct?

A. Yes.

Q. Could you briefly describe what this is?

A. This is the GRINNELL catalogue, pipe hangers and supports.

Q. Now that is a more recent catalogue but would it be fair to say that same pipe, hangers and supports that are shown in that catalogue also existed in 1970?

A. Yes.

Q. The defendant then offers Defendant's "B" and "B-1" into

evidence.

MR. BRYAN: Your Honor, we don't think there is going to be any objection but I'd like to reserve.

THE COURT: Until you have an opportunity to look at them we will reserve ruling on that, we will give them a chance to look at them if they haven't already done so.

MR. BRYAN: I don't want to stop cross-examination if you don't need them right away, can the Court rule on them later?

MR. SAXER: Certainly.

Q. You've seen the one, this one you've seen and this one is a new one, but both of these are catalogues that are full of devices that could be bought to hang pipe correctly?

A. Yes.

Q. Hundreds of them in just these two?

A. Yes.

Q. And these aren't the only two people or companies in business who do that?

A. Yes.

Q. Theres even more, there are thousands of things you can readily purchase on the open market to hang a pipe right?

A. Yes.

Q. C Clamps, so on and so forth?

A. (No response).

Q. Now, I'd like to talk with you for just a few moments now,

on what you tested and what you didn't test. What did you set your test up to measure?

A. (No response).

Q. What were you trying to find out?

A. I was attempting to find out just what a man could do to this particular system.

Q. You were trying to measure the force of let's say, a man's hand and what that would do?

A. Yes.

Q. Essentially you did know that before you started?

A. I was attempting to find out what sott of an effect the force from the man's hand would have on them.

Q. Did you expect before you started, it would break it?

A. I wasn't sure whether I - I had a feeling, yes.

Q. So the testing would have proved something to you, or confirm something that you already had a feeling about?

A. Confirm a suspicion, yes.

Q. Now did you do any test with regard to the metal or the makings of the pin itself?

A. No.

Q. Or of the adapater?

A. No. It didn't seem to be relevant.

Q. Did you test the pin?

* * *

Q. Now, thirty-five pounds of force in here, if it were pushed this way, would it sound fair to you if I were to say that the pressure here or the stress up here would actually be nine hundred thousand pounds per square inch?

A. I would have to compute it, I'm not surprised, I'm not surprised if it, - there is a gap.

Q. Could you compute it here?

A. Yes.

Q. How long would it take?

A. I can try in a few minutes.

Q. Oh, a few minutes is a long time to wait. Perhaps if we had a recess and we weren't done, you might do it. In any event you would agree what I am talking about this pressure up here, is actually a very high figure on the one six inch piece of metal?

A. Yes.

Q. You could compute it and I might be wrong, if I were off fifty percent, it would be 450,000 pounds per square inch of pressure on the shank of the fastener?

A. Yes.

Q. Now, I have thought of this last night I, and I said, I am not going to ask him that, but I can't restrain myself. Doctor, what happens when an unstoppable force meets an immovable object?

A. I don't think I can answer that question.

Q. Has an engineer ever resolved that problem?

A. I don't think it's ever come up.

Q. The pin in there, is an unmovable object, isn't it?

A. It has a certain amount of flexibility to it. It is movable, slightly.

* * *

Q. Okay. this is the E.W. 6 pin, is that correct?

A. Yes, it appears to be.

Q. Anything wrong with it that you can see?

A. I'm sorry.

Q. Anything wrong with it?

A. No, not that I see, in comparison with the others.

Q. Nothing wrong with it?

A. No.

Q. Is it dangerous?

A. Not as it stands here, no.

Q. Is it defective?

A. Well, --

Q. As it sits there?

A. As it sits here in my hand, no.

Q. What you are talking about here, when you spoke to Mr. BRYAN then, was not the pin or the adapter, but the use to which they were put?

A. Combination of the two.

Q. Uh huh, the adapter, the use of it, which they were put?

A. Adapater and the pipe, the combination of the two.

Q. But the pin itself is fine?

A. (No response).

Q. Not, nothing wrong with it?

A. Not from the standpoint of surface defect or anything, no.

Q. But to begin where you are talking about the things you said in your, you're only talking about a particular application then, this application?

A. You have to define what the things that I said.

Q. Well, we'll get to that in a minute. That fastener you have in your hands obviously has many, many uses, you said that?

A. Yes.

Q. Many good, solid, correct uses?

A. Yes.

Q. From looking at that fastener, you also said it's got a one-sixth or I think it is a one-sixth or a one-seventh inch shank, it's 145, something like that, do you have the numbers right?

A. According to the specifications, yes.

Q. Now you can tell from just looking at that fastener, you

can tell from just the fact that it has a one-sixth inch shank, from just looking at it and measuring its thickness, you can tell that it's not designed to accept a bending load, can't you?

A. (No response).

Q. Did the question come out right?

A. For what application? Designed for what?

Q. Any significant bending.

A. Any significant bending, yes, I would agree it would not be able to take any significant bending.

Q. You can tell that from looking at it?

A. Yes, I still don't, I know from the test that I have run, that that is true.

Q. Before you tested though, you could tell this, a piece of hard steel one-sixth of an inch wide, is not designed to accept a significant bending force, you could tell that in the palm of your hand?

A. That is true, hard steel, but of course, one looks at a piece of soft steel, you are out of a different ball game.

Q. You didn't think that was soft steel?

A. I certainly did not.

Q. Uh huh, it was not designed to accept a heavy bending load, is that correct?

A. Not for this application.

Q. Any application?

A. Well, significant, of course, has to be defined.

Q. You use the word.

A. Hast to be defined according to the bending allowable that you give me.

Q. I didn't give you a bending allowable?

A. That's right, you didn't give me a bending allowable I can't tell you what moment I can apply to the pin.

Q. Let me give you a bending allowable then. Got it? It has no bending allowable. Does it? Because it is a piece of hard steel, one-sigth of an inch thick.

A. It has to be some figure applied to it, as a bending allowable, there has to be. Youcan't say it's zero. If you say zero inch bounds, then I would be able to just touch it. It would be, it would break in bending.

Q. It wouldn't accept a heavy bending stress?

A. Well, it depends on the material.

Q. That material?

A. This material is undefined at this point. I still don't know what this is.

Q. Hard steel, doctor?

A. What is its ul imate strength, tell me what it's ultimate strength, then I can give you a bending allowable for this particular pin.

Q. Could you give me the bending allowable for the bolt?

A. Tell me the material for that and I'll do it.

Q. How would you go about doing that?

A. I would have to use bending formula for that.

Q. Bending formula?

A. Yes.

Q. You wouldn't look it up in a book?

A. You can do that, too, but I think it would be quicker to -

Q. What book?

A. Number of machine design texts.

Q. What book could you look up the bending moment of that, what book?

A. The bending moment allowables, no I would have no, no, I misunderstood your question. I would have to know the, first of all, the diameter of the bolt, I would have to know its ultimate strength, its capability, to take bending stress and then I could compute its bending moment.

Q. Is this what they do in the construction industry before they use a bolt?

A. I think you will find that in probably the overhead areas that a single mechanical engineer would do a computation on it if he didn't put his stamp on to the drawing and someone was injured, it would be very bad for him.

Q. Might he not tackle the problem in another way, might he simply write a set of specifications or even a mechanic could use parts supplied by a manufacturer of what had already been tested?

A. Yes.

Q. Steel City?

A. Yes, that is an approach.

Q. Isn't that the approach that is commonly used in the industry?

A. It is used. I don't know whether it is used commonly but it is used, sure, you go to the manufacturers and to vendors that sell these things and buy them and you use them.

Q. If you knew presicely what that bolt was made of, how long do you think it would take you to calculate its bending moment?

A. Again, a few minutes, it is the same formula we discussed previously that, - that you would like me not to do.

Q. You would calculate it because you couldn't look it up in that thick blue book that you have?

A. I would calculate it just to be on the safe side.

* * *

Q. If HANS HUVA had drilled those two holes like I said, put those two bolts in there, is the only change that he would have had to calculate this bending moment, - for the bolt?

A. I'm not sure he would be capable to do that but he would have to have done that, yes.

Q. If he couldnt calculate the bending moment for that bolt, why, he would go and look it up if, if he could find a place to look it up.

A. Yes, if he could find one, yes.

Q. And there aren't any?

A. He's probably incapable of that.

Q. Well, HANS is a pretty capable guy.

A. But if he - but if he saw that there was a bending allowable, that might have stopped him and he would then have to go back to the engineer to check to see if that particular application were all right.

Q. Now, I have found what I was looking for. You remember we were discussing materials that fasteners might be made of and I asked you the question, "Is there any, in the world, any sixth inch fastener that can be used to do this?"

A. (No response).

Q. The world's a big place, take your time.

A. Is there any one-sixth inch fastener that could do this?

Q. And it would be acceptable in fastening that rig there.

A. With a 35-pound force?

Q. And, yes, same force you're using there.

A. Same force.

Q. Remember now, there is 35-pound force, 900,000 pounds per

- 900,000 pounds per square inch upon the shank.

MR. BRYAN: Wait a minute, that isn't the evidence, that is Mr. Saxer's characterization of the - (SIMULTANEOUS VOICES).

MR. SAXER: We'll tie it up, Judge.

THE COURT: All right, go ahead.

A. I would have to do the computation to find that out.

Q. You didn't have to do the computations when I asked you this in your deposition.

A. Point that out to me.

Q. Well, the question is, "Is it fair to say if I took any four five over one thousandths and that's a sixth of an inch, isn't it?

A. What page and line is that?

Q. 59. Question at the top, "Is it fair to say if I took any one-sixth inch diameter shank that is commonly used in fastening, and fasten to these pieces you have described in your test, that it would fail", were you asked that question?

A. Yes.

Q. Read your ansser.

A. And of course, -

Q. Read your answer.

A. I will read the whole thing. "Is it fair to say if I took any one hundred and forty-five thousandths diameter shank, that is commonly used in fastening and fastened it to these pieces you have described in

a, in your test, that it would fail." My answer was, "I could probably find a material that would not fail. It's a material called "vascumask," it's a material commonly used in - (inaudible).

REPORTER: Called, what?

A. Let me start over.

REPORTER: Well just give me the name of that material.

A. Vascumask, and I'm not sure of the spelling, it's V-A-S-C-O-M-A-S, commonly used in the machine design area. Vascomas is very, very high yield but it's ultimate strength is close to the yield, so it's truly brittle material. Very high strength and probably wouldn't fail in that situation. However, we have to look at how Vascomas might behave in the application that we're talking about,here. Perhaps Vascomas would shatter with the explosive drive. It may not do it in that particular application.

Q. Is that the answer, is that end of your answer?

A. Yes, that's the end of my answer.

Q. Now, you were directly asked if any one-sixthinch shank could do this job and your answer was, "Well maybe we could do it with Vascomas," and when we took this deposition, every other material on the Earth, was still here and you could have said anything. You said vascomas. Are there any fasteners in this world that are made of vascomas?

A. (continuing) Other than special fasteners that are used in the Aerospace, - (simultaneous voices)

Q. So with the sole exception of this material which you have described to us as vascomas, I will now say I am wrong, with one exception, there are no other materials on earth that you could use?

A. We haven't examined all the possibilities, of course, and I would have to go and examine it, I would have to check formula, I would have to check your formula to see that you made the proper calculation, plus, I'm sure that the calculations based on certain assumptions, snugness of the bolt, for example. There this will come into it.

Q. Could you quickly list for me five or six materials that would be able to make a one-sixth inch shank for use in that trapeze? Five or six, that's all.

A. Five or six materials?

Q. Sure.

A. Why? This is the question. Various types of steels would work very likely, if we could get the right combination.

Q. How do you know?

A. Well, we would have to compute it. We would have to compute it and look at it.

Q. Which type of steel?

A. Let me finish. Let me finish. We would have to compute it. We would have to go into your assumptions

for maximum stress. You would have to look at how the adapter was seated. How much gap there was. We would have to examine a number of things, based, that the computation is based on. This has not been done. Not by me.

Q. This trapeze, I'm still talking about, -

A. Yes.

Q. - this same trapeze.

A. I am, too.

Q. Vascomas?

A. Well, is thac a question?

Q. No, not really. It's steel, other types of steel. What types of steel are you referring to?

A. Well, I cannot be dragged into a discussion on it without looking at all of the, all of the ramifications, the computations, then I have to make material, or examination the material selections books.

Q. Perhaps I wouldn't be confused if you gave me this answer when we asked the question in your deposition, and your answer wasn't this, it was, well, maybe vascomas would do it.

A. Yes, but at the deposition I also didn't do the computation, remember. You're asking my opinion and I say probably we can find one. This is an off-the-cuff answer, without a computation.

Q. Now, do you have an adapter on the table in front of you?

A. Yes.

Q. That's what it is, isn't it, it's a simple adapter?

A. Yes.

Q. Is it defective?

A. It is difficult to say. It does not appear to be defective in material.

Q. Is it dangerous?

A. THE COURT: I think we've been over this once.

Q. That was with the pin, Judge.

THE COURT: Well I think the witness testified that the adapter didn't appear to be dangerous.

Q. Would you fairly say that it's a multi-purpose adapter?

A. Yes.

Q. Put a rod in it?

A. Yes.

Q. Put a bolt in it?

A. yes.

Q. Why you could even use it without putting on a HILTI stud, you don't have to use a HILTI stud, you could put or use a different size a rod or two different sizes of rod together with it?

A. That is true.

Q. It's a coupling adapter and that's all it appears to be?

A. Yes.

Q. Now again, your test didn't test the adapter, you tested its application?

A. Tested the combination , - the system.

* * *

Q. I'll waive the question for a moment. Now as I indicated to you, what we are talking about here is what you testified to concerning a warning. Let me address the question to that. You said you were warning about. You indicated that there should be a warning that this pin would break if it would bend, it, if it were bent?

A. (No response)

MR. BRYAN: I don't recall that that's his testimony so I object to the question.

THE COURT: Well, - (simultaneous voices).

A. I can't recall the exact words but I know that somewhere in the testimony that I have pointed out that if a man, if a professional engineer were going to do a design, that he would have to have some kind of an allowable for bending, a warning on the allowable, along with these other two figures that are provided.

Q. Now, if what you're saying in that regard were true, we could look up in that book and find out the bending allowables for all these other types of fasteners?

A. Again, we've been through this two or three times before, too. This is implied, the material of the fastener has to be known if you are going to do a computation on it, you then know the allowable, then you go back through this computation we've been talking about, in order to get the allowable bending moment. It is implied in it. But you see, the actual material that the HILTI pins is made out of is not listed in the book, we don't know the bending allowable. This is where I see the thing go.

Q. Q. Are they listed in the bolt book there, that all the materials are -

A. I don't know, I would have to look at it to see.

Q. Well, let me get at this in another way. What other fastener company on the entire earth sets forth warnings with regard to the bending allowable of a fastener? Any industry that doesn't use fasteners for bending?

A. (No response).

Q. What company?

A. Well, I would have to survey the whole field in order to see it.

Q. Are you - -

A. Someone would, someone would have to state, for example,

mild steel bolts happen to, you have to know the ultimate strength of, for it, we have to know their ultimate fiber strength, pliable strength, or bending strength. That implies the bending allowable.

Q. What company on the face of this Earth, now displays a warning with regard to the bending allowable of its fastener? Surely, there must be one.

A. There is no sign in the catalogue that I know of.

Q. You were not then asking HILTI to put a sign in its catalogue, either?

A. You're asking my opinion? My opinion is that on the same page that you have this falling argument here, in the HILTI catalogue, there is a section in there on spaulding. Look out, don't break the concrete. You may need it somewhere. You may spoil the fastener. That's the same page, I think, should have a description of what will happen to a HILTI fastener if it's broken in bending overhead. That's my opinion on this.

Q. And that's because - (INTERRUPTED, SIMULTANEOUS VOICES)

A. That's - and that would fit in on that page perfectly.

Q. And that's because all the other companies do it?

A. (No response).

Q. I mean, all the bolt manufacturers, they have a warning like that, right? Wrong!

THE COURT: Well, what's the question?

Q. No other company on earth gives a warning such as you have

described with that fastener, does it?

A. The HILTI Company gives a warning for spaulding, for example.

Q. No, I'm talking about the same warning that you're talking about and that's the bending warning.

A. Yes and I have to come back again that a lot of it is implied. You give the material specifications and you do the computation and you come up with the bending allowable. The problem is that if you don't have the material specifications, you can't make the computation. See, your, your, - the professional engineer is very hard-pressed if he is even going to do the design of this, because he can't get the material specifications.

Q. He could call the company, couldn't he?

A. If it's available. Obviously it's not available. It hasn't been available to me at this point.

Q. Before we leave this subject, because I don't think I have an answer, does any company in the fastening business, make a per se warning against bending its fasteners?

MR. BRYAN: I object to this because I think the witness has answered the question.

THE COURT: Yes, the Court thinks we've been through this far enough. I, - the witness hasn't indicated any company that he knows of, other than that, neither has he had an opportunity to examine the book in this context.

MR. BRYAN: Well then Judge, I think that

just for the record, the manufacturer does state the steel, this can be computed, so I think his answer is complete.

THE COURT: Yes.

Q. Now, many fastening companies, including many of the ones that are in that book. Let me see if I can give you an example, so we don't have to thumb through it. I'm looking for a chart, Doctor, so I won't have to ask you to read it and as luck would have it, ah, here's one now. Here's a fastening company. This is with regard to fasteners, is that correct?

A. Yes.

Q. And they have charts there to show you the forces concerning those fasteners?

A. Uh huh, yah, this, this I think is - (SIMULTANEOUS)_

Q. They have charts there that show you the forces that -

A. Yes.

Q. - that concerns those fasteners?

A. Yes.

Q. Now they show you the tension force, just like the HILTI chart?

A. Yes.

Q. They show you a torquing force?

A. Yes.

Q. They don't show any chart for bending force?

A. But you see that, - this, this particular one it's very pertinent here. This shows a torque,recommended installation torque, which the HILTO Company just

* * *

Q. There is a torque?

A. Yes.

Q. I didn't ask you that. How did I get that answer? I was going to ask you that. Now, incidentally a torque force, you indicated a torque force might have played a role here, is that right?

A. (No response).

* * *

Q. Now, with regard to this warning, regarding bending, a warning wouldn't be necessary to give a warning to a person who knew that if you bend it it would break, would it? The warning would be for the ones who do not know?

A. Repeat that question, I'm sorry.

Q. It would not be necessary to give a warning to a person who knew that if you bent it, it would break?

A. (No response).

Q. The trained and the un-trained?

A. If the person, if the person had information, that's true, you wouldn't have to tell him if he had the proper information.

Q. And if Mr. HUVA and Mr. VALLAIRES were aware that it would bend, when it broke, they wouldn't need a warning, and didn't, did they?

A. If they had the proper information again, they wouldn't ---

Q. If their information was that if I use this, I think it's going to break, they wouldn't need a warning, would they?

A. Again if someone that had knowledge said that to them, yes.

Q. I don't understand your answer but I don't need to pursue it. Now, you indicated I think it was the first

question I asked you, although I no longer remember, that there are million ways to use a fastener?

A. Yes.

Q. Now, if we were to write a book and on each page of this book we would put a warning for each of these million wrong ways to use a fastener, we would have a book that would be a million pages long. That is a simple "yes" or "no" question.

A. That over-simplies it, there are only four modes of failure apparent in this particular pin. Not a million modes of failure, there are four of them.

Q. We are not talking about the modes of failure.

A. (SIMULTANEOUS VOICES). --- One is the four modes of failure, and one of the foremost modes of failure, you would run against four modes of failure. That's four warnings.

Q. We are not talking about the application, we are not talking about the modes of failure, we are talking about the misapplication. There are a million ways to misapply this product, aren't there?

A. I agree.

Q. And if we warn against each one we would have a book a million pages long?

A. I agree.

Q. And when we have finished writing that book and we've lifted our weary hands from the page, what do you suppose the human race would do then?

A. They would not read that book.

Q. Now that and what else? I think you also said from your testimony why some real genius would come up with one million, one.

A. That's correct.

Q. Now, when you say also before a compa[illegible]hould make warnings of any kind that they should have information coming to them from the field that a warning is in fact necessary, the people are doing something wrong and we'd better stop it.

A. (No response).

Q. I got this from you, Doctor, and you -(SIMULTANEOUS VOICES)

A. From a - from a deposition?

Q. Yes.

A. We discussed this in the deposition?

Q. Yes.

A. Well my problem is, I didn't get the whole question. Repeat it again?

Q. You wouldn't expect the company to warn about something that they don't know that is going on, would you?

A. They couldn't.

Q. That's right and you wouldn't expect them to warn about something that they don't know is occurring?

A. They couldn't.

Q. That's true. True enough. Now, if a system such as this were actually in wide use, we have a file drawer full of records of mistakes, wouldn't we, they would break

all over the place, break in A CALIFORNIA, VERMONT and everywhere, because this is no good?

A. That's correct. If in fact it were being used in the field we would know about it, if it were reported.

Q. True enough.

A. We'd know about it if it were reported.

Q. If this were in common use in the field, you'd think we'd hear about it because it would break in a lot of places?

A. It's only an opinion, but certainly other people would have been injured.

Q. Now if in fact there were not many failures, that one, that would suggest two simple things, wouldn't it? It would suggest first that this method isn't widely used in the business and used hardly at all?

A. Possibly.

Q. Have you ever seen it used before?

A. No, I haven't.

Q. The second suggestion we could make, based on the fact that there aren't very many reported, is that the company would have no information on which to base the warning, would they?

A. That is a possibility, as well.

* * *

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Q. What's that figure; tell us what the 29% all about?

A. That's what I'm getting at. It's interesting to note on page 17, here in the American Society of Testing Material Standards book, that we have a table of steels, particular steel escapes me at the moment, but this particular steel has a tensile strength of forty-five thousand PSI which is, has thirty-six and a half percent elongation.

In other words, at the point where the steel failed in the test, the actual strain was thirty-six and a half percent, so it appears from this, this is a very interesting calculation to me. It appears that if one sums up this coupling, first of all tightens it down to the beam, reasonable with some kind of a torque, allowable, don't over torque it, that one can reduce this bending effect and make the design marginal rather than hopeless.

Q. What's this - okay, now, you say design marginal or design hopeless; what are you talking about?

A. If we were to have only bending of the pin reacting against this thirty-five pound force, we would be

hard pressed to find a material. I agree, I can not find the material at the present day and age that is nine hundred and thirty-five thousand pounds per square inch ultimate strength.

On the other hand, if we have this situation I've just described, it appears that, what I mean by marginal is that the device may work and it may not work. It may overload and it may not overload, we're not sure until we do a very careful calculation or a test, and I feel myself that this is the reason that I saw in my personal tests, why it took me six to eight tap sites before it failed. Now, it didn't just go once and then fail.

Q. Now, with respect to an engineer's approach to a person such as Hans HUVA selecting an application such as this one, what's the significance of this application being marginal and instead of hopeless?

A. Well, if it may work and may not work. He probably would have little information to go on. He would be rather hard pressed to know whether it would work even if, even if he had put the thing up and then tested it by hand as I did it. He may have found that it would work and he may have found that it would not work.

MR. SAXER: I don't think there was any evidence in the case at any point to show that

Hans HUVA tested, even attempted to test for it; therefore, I object to the answer and move that the jury be instructed not to consider it.

THE COURT: No, we'll allow the answer to stand. (Simultaneous voices). The jury will have in mind what the testimony was on that point. Go ahead.

Q. I'm sorry, Your Honor. Where do the, where does the information that you described earlier in your testimony the other day that was lacking, namely the bending and the tension tables and information; where do they fit into this marginal picture?

A. It's, it's....essential....

Q. We've got two of us talking.

A. I'm sorry. It's essential that if the engineer is going to complete his calculations that he have the material properties. For example, I can go to the ASTM Standards book and read you the percent of elongation on steel rods before it fails, but if I don't know which material it is, I can't find that out. It's essentially yield strength and the ultimate strength and a number of other properities.

Q. How about for a fellow such as Hans HUVA who is not an engineer with a ticket, what does he need when he's confronted with an application such as..... (simultaneous voices)

MR. SAXER: I object to the question because there is no evidence to support the question or the answer.

THE COURT: We'll sustain your objection to the pending question.

Q. Well, you described the other day that there were two modes of failure against which there was no information in any of the HILTI materials that were supplied to Hans HUVA?

A. Yes.

Q. And that I believe is already in evidence from other sources. And do you, can you tell me what the significance is of what you've described as a marginal design or marginal situation with respect to the lack of those two sets of data?

A. Well, first of all, without any bending allowable, or without any torsion allowable on that particular pin, one can not find out whether the system itself will fail or will not fail.

* * *

Q. So suffice it to say, if you want to know when a material is going to break, you've got to know what it's made of, right?

A. In many situations, and of course on this one here it looks as if it would help, although I believe the analysis that I've done is a good order of magnitude study.

* * *

Q. Now, one last area I'd like to cover very briefly with you. Mr. ZINK indicated that warning in the fastening industry as to bending modes of failure is just simply, I guess practically unheard of, and I would like you to just....(simultaneous voices)

MR. SAXER: Bending modes of failures in fasteners?

Q. That's what I said, fasteners. I would like to ask you if you've had a chance to go through this fastening file of Sweets, the Defendant's Exhibit "b-1"?

A. Yes.

Q. And this again is a publication that is geared to what sort of reader?

A. Well, on the first page inside it says, the files have been compiled to serve the design engineer, the plant engineer, and the manufacturing engineer.

Q. Now, this isn't really the Hans HUVA of this world, is it?

A. No, it does not appear to be.

Q. So this is really for your use; you fellows have this sort of thing on your library shelves, is that right?

A. Yes.

Q. Now, these warnings then, do they take some particular form geared to the type of reader that is going to be involved?

A. Yes.

Q. Just tell us very briefly and generally, are those warnings in here from the fasteners, from information that constitutes a warning to an engineer?

A. Yes, I found in twenty places in the volume.

MR. SAXER: I object to his summary. If the witness would refer precisely to the page and the volume rather than characterize it in his own way.

THE COURT: Well, you may refer to specific items if you care to.

A. Yes, I will. These pages are not numbered so unfortunately....

Q. Well, I don't want to take a lot of time going through each and every one. Really, my question is, tell us generally what you found; that's all I want?

A. All right. I'll have to read from my notes. The "Allenhead" has some steel types given and when the steel types are given of course, we know what yield strength and what ultimate strengths are involved.

Q. If I may interrupt you just to shorten things up; that's a warning to an engineer?

A. Yes.

Q. He knows something that he needs to know?

A. Yes.

Q. Okay, and suffice it to say, did you go through and find a number of warnings in various types of forms.....(interrupted)

MR. SAXER: I object. Counsel can not take data and make it a warning by giving it that name. Data is what it is, data.

THE COURT: Objection overruled. Proceed.

A. There is a warning of high installation torques for the esna fastener. That is one that I had discussed previously where we have torques beyond which, that is if one had a torque wrench and one is torquing down the fastener, we can not go beyond a specific torque or the torque fastener will lose its serviceability, it may be twisted off.

There are places in here - of course, the bending is implied from the material specifications. If one knows the material specifications, one can find out the bending strength in it.

Q. Okay, now, let me stop you there. It's fair and simple for an engineer to pick up an implied warning from the materials, is it not?

A. Yes.

Q. I see, and that's a perfectly sufficient warning, is it,

for an engineer?

A. Yes.

Q. How about for a person who is a non-technical person?

MR. SAXER: Object. Again, I believe we're using a professor of mechanical engineering to try and testify what people in the street think.

THE COURT: Yes, the objection is sustained as to whether....

MR. SAXER: Unless of course counsel could qualify a given opinion.

THE COURT: The Court's ruled; go ahead.

Q. Well, Doctor, if one were to give bending moments in terms of warnings to a person who is not trained such as you are trained, would the materials specifications be helpful to him?

A. If he has no training, I would, for example, if I may make a specific, if I knew that one of the materials had a yield or ultimate strength that was given, and I had told the person who was untrained the yield strength was this and the ultimate strength was this, he wouldn't know what that value was, he wouldn't know what to do with it.

Q. Just to give a fellow the material specifications doesn't warn him if he doesn't know what to do with the formula, is that correct?

A. Yes.

Q. Now, I show you Plaintiff's Exhibit, Defendant's Exhibit, I guess, "L", on page 141 I think, and ask you if that goes a little farther and what does that attempt to do?

A. (No response)

Q. Does that give you some sort of translation of what you might get as an engineer from the material specifications?

A. Yes, page 141 shows either the rod size that must be picked for a given movement. And apparently the table has been computed based on the limitations of the bending of that rod.

Q. And it gives you moment arms there too, doesn't it?

A. Yes, it does. It gives the moment arms, it gives it in sort of a general terms so that someone would be able to read and measure dimensions.

Q. A layman could figure it out?

A. Yes, a layman could figure it out.

* * *

EXAMINATION BY THE COURT:

Q. You spoke at the time of your original testimony concerning the properities of the material that was used in the HILTI stud and its hardness?

A. Yes.

Q. How did you find that out, is that from some literature in the package that accompanies the sale of it or how did you....

McLAY (recalled) - Examination by the Court

A. From the HILTI, the HILTI product itself?

Q. Yes.

A. I didn't receive any material properties from HILTI.

Q. Well, how did you know what the properties of this particular substance, other than it would penetrate steel?

A. I didn't.

Q. And that's the entire basis for your judgment that it's brittle?

A. No, I based it on the fact that I know that hardened materials do become brittle. As I mentioned, it's a matter of degree. There is a fine line.

Q. Well, is there anywhere in the catalogs or the material that was provided with the sale of this particular product that indicates what the substance of the product is, what its material properties are?

A. No, not that I can find, no.

* * *

Q. You found a warning in here for torque?

A. Yes.

Q. Did you find any for bending?

A. Yes, as a matter of fact I did.

Q. Show it to me.

A. I'll have to look in my notes again.

Q. I'll wait.

A. As I mentioned, whenever one gives allowables, whenever one gives a material specifications.

(SIMULTANEOUS VOICES)

THE COURT: Wait just a minute. We'll allow the counsel to ask the question and allow the witness to answer as long as they aren't simultaneous.

You may proceed with your answer.

A. Thank you. As I mentioned, the, when a material property is given, the material specification is given, this to an engineer is an implied warning.

There is one place in here that is

rather interesting. I think it's a fastener, it's an unusual fastener, if I can find it....yes, the "high-sol adhesives" which are glues, they're very complete. They give tensile, sheer, compressive limits; they give a flectual strength, and the words flectual strength mean that is the bending allowable for the adhesive as it covers something, so when one bends something that adhesive may crack during the bending process.

Q. Are you finished, Doctor?

A. Yes.

Q. With regard to the warning that you located that glue cracks as you bend it, did you find any other bending warning in the fastening catalog?

A. I found it implied in the material properties given as I have testified several times.

* * *

Q. Now, how much education have you had, formal education?

A. Eight years.

Q. You graduated from the eighth grade?

A. Yes.

Q. And then did you go into some kind of work?

A. Yes.

Q. What kind of work was that?

A. Farming.

Q. And did you work with somebody in that kind of work?

A. I worked with my father.

Q. Tell me about farm work briefly, Frank, give us some idea of what type of work that was?

A. It was a dairy farm which consisted of milking cows, putting in in the summertime, put your crops in, and then we did the normal dairy farm work I guess.

Q. Well, was some of it heavy work, Frank?

A. Yes, some of it was.

Q. Long hours?

A. Very, very long.

Q. Approximately how many hours a day would you work as a

farmer, Frank?

A. In the summertime, it would be nothing to work from 5:30 in the morning to probably seven, eight at night during haying or when you're putting your crops in. During the wintertime, you got it easier.

Q. How, how long did you work with your father on the farm?

A. I worked with him up until 1966.

Q. And at that time did something happen to the farm?

A. Yes, we dissolved farming. We had an auction and sold the cows and machinery off.

Q. Do you recall why it was that you stopped farming?

A. Because of economical reasons. There wasn't enough money in farming to support your family.

Q. There were two families involved, your father's and your own?

A. Yes.

Q. Now, what did you do immediately after you ceased farming?

A. We - I built a house for my father and mother to live in.

Q. Did you do the plumbing work on that house?

A. I didn't do the plumbing work, no.

Q. Did you do some electrical work?

A. Yes, I did the electrical work.

Q. Where did you pick up the knowhow to do that kind of work?

A. I did few odd jobs around when I was farming through the years. We built additions onto the barn. We

built a new milking roo which I wired myself, and I just basically picked it up as I went.

Q. Now, after you completed the house for your father, did you, were you then in a position of looking for other work?

A. Pardon?

Q. Let me rephrase the question. After you completed the house for your father, did you, were you then in a position of looking for other kinds of work?

A. Yes.

Q. And did you find work for that right away?

A. No, I did not.

Q. Did you ultimately find some kind of work?

A. We finished with our work, yes.

Q. What was the nature of that work?

A. I think I worked, started at Lavalley & Royce in a machine shop.

Q. What type of work did you do there?

A. It was operating a machine.

Q. Do you recall what year that was?

A. I would say probably '67 maybe.

Q. And how long did you work at that?

A. Approximately a year or eleven months; I couldn't be exact.

Q. Do you recall how much you were paid?

A. Something like $2.65 an hour, I really can't recall exactly.

Q. And did there come a time when you stopped this kind of work?

A. Yes, there did.

Q. And did you then find another type of work?

A. Yes.

Q. What was the other type of work that you found then?

A. I worked as an electrician for Flanders Co.

Q. How long - that was wiring houses?

A. Yes.

Q. How long did you work at that?

A. It wasn't very long. I forget, three or four weeks, two weeks. I really can't remember.

Q. And then did you find some other kind of work?

A. Yes, I did.

Q. And what kind of work was that?

A. It was putting up fences for S. T. Griswold.

Q. And how long did you work at that?

A. Probably four, five months.

Q. And then you found still some other kind of work?

A. I was laid off on that job right after Christmas I believe.

Q. Do you recall what year that was?

A. That would be '69.

Q. And thereafter, were you laid off for a period of time?

A. About two, three months.

Q. And then did you find some other kind of work?

A. Yes, I did.

Q. What kind of work was that?

A. It was electrical work.

Q. Was it the same kind of work that you had, electrical work you had done before or was it a different kind of work?

A. It was a different type of electrical work, it was construction work.

Q. Is this what's referred to as working in industrial electrical work?

A. Yes.

Q. How did you get that job, Frank?

A. I went down to see the business manager for the local and they were in need of electricians at that time. It was, in fact they were short of electricians and he wrote me out a card and told me to report to Fellows Gearshift new branch in North Springfield, Vermont.

Q. Did you join the union?

A. No.

Q. Was it necessary for you to join the union?

A. No.

Q. Did you occupy some special classification?

A. I don't understand.

Q. Well, would you have been called a permittee?

A. Yes.

Q. That was a special classification for people who are permitted to work on union industrial electrical

jobs but who are not members of the union?

A. Yes.

Q. Where did you first work under that classification?

A. At Fellows Gearshapers new plant that they were building.

Q. That's up here in Springfield?

A. North Springfield, yes.

Q. And do you recall how long you worked at that job?

A. I can't recall specifically. I would say in the neighborhood of three months.

Q. And were you then shifted to another job?

A. Yes, I was.

Q. Where were you shifted then?

A. To a job that they were doing, the same company was doing at IBM plant in Essex Junction.

Q. And you then worked there doing essentially the same kind of work?

A. Yes, I did.

Q. And do you recall how long you worked there?

A. For a period of probably four, five, four or five months.

Q. And were you then shifted to still another job?

A. Yes, I was.

Q. And where was that?

A. That was in Burlington. It was part of a UVM job; I can't remember the name of the building that we were building.

Q. Was this the building you were working on in July 20, 1970?

A. No.

Q. This was some other building?

A. Yes.

Q. Do you recall how long you worked at that?

A. I worked at that for approximately eight months, which means between that, and the company would, if they were short of work there, they would send you on to some other jobs, which took me to St. Albans sometimes, sometimes up in Johnson. They had different jobs going.

Q. So you were moved around but always as a permittee doing electrical industrial work?

A. Yes.

Q. Now, at sometime did you go to work for a dormitory located on Spear Street in Burlington?

A. Yes.

Q. Was this a UVM building?

A. Yes.

Q. Do you recall when you went to work there?

A. I went to work July, it was first part of July. I can't recall the date.

Q. Now, from the time that you went to work as a permittee, did you work more or less continuously from that time until you went to work on the UVM dormitory job that you just mentioned?

A. Yes.

Q. Incidentally, when you went to work on the UVM job in early July 1970, do you recall what you were being paid on an hourly basis or weekly basis?

A. It seems to me it was $5.50 an hour.

Q. And that would be for a forty-hour week?

A. Yes.

Q. So that on a 40-hour week, you were being paid about $220.00 a week?

A. Yes.

Q. Now, let me come back - tell us a little bit about the type of work you did as a permittee. Now, just describe it for us in your own terms?

A. Well, there is quite a bit of work involved. I mean there's, you know, sometimes you put in a receptable, sometimes you hang lights, sometimes you pull wire, sometimes you run conduit which basically I guess that is what I did most of the time was run conduit, and then you put in what they called "walker pipe" underneath the cement floors.

Q. Now, was this the type of work in an industrial electrical job that a less experienced person tended to do?

A. Yes, I would say so, yes.

Q. I wonder if it would be fair to say that you were sort of a helper in all of this work, were you?

A. Yes. On any of those jobs, most of the time, practically all of the time, there is two men working with

you. Usually it's a union, member of the union and they give them what you call a permit worker or an apprentice.

Q. Now, do you recall July 20, 1970?

A. Yes.

Q. Do you recall coming to work that morning?

A. Yes.

Q. Was this on the UVM job that you mentioned that you had started in, somewhere in the early part of July?

A. Yes.

Q. Do you recall what type of work you were assigned to that morning when you came in?

A. That morning we were assigned to run a conduit across the ceiling.

Q. Could you describe the building or room in which you were working?

A. I believe it was a cafeteria. I wasn't there that long so I really, I, you know, just don't know what all these rooms are for but I heard after that it was a cafeteria that it was or a lobby there.

Q. Could you describe for us in your own terms what that room looked like?

A. Well, this here was the beginning of construction. I mean it was just steel beams across the ceiling. I forget whether the ceiling had been finished. I know there was the second floor which was, had already been cemented, I believe to the best of my

memory.

Q. Do you recall how far apart these beams were?

A. I would say approximately twelve feet.

Q. You were here when Mr. VALLIERE testified?

A. Yes, I was.

Q. And you recall that he said they were what, eight feet, something like that?

A. Yes.

Q. Your memory in that is different from his?

A. Yes, it is.

Q. Do you recall the type of work you were assigned to do that morning?

A. I really didn't get that many orders. As Mr. VALLIERE had stated, you know, that the foreman gave him the orders.

Q. And you worked then under Mr. VALLIERE?

A. Yes.

Q. And do you recall what you were told to do?

A. Yes, I do.

Q. What was that?

A. We were to hang this pipe across the ceiling of that building.

Q. Do you recall what size pipe that, or conduit that was?

A. It was three inch.

Q. That's about the size of the pipe in this room?

A. Yes, it is.

Q. And do you recall the method of hanging that conduit or

pipe?

A. Yes, I do.

Q. Would you tell us what it was?

A. It was to be fastened with a Hilti pin, hung down to the rods with a unistrut across.

Q. Frank, I show you what's entitled Plaintiff's Exhibit "8", and is this about the type of structure that you were instructed to hang pipe in?

A. Yes, it is.

Q. Incidentally, could you tell us the procedure that was followed in putting up what has been referred thereto as a hangar or trapeze?

A. I don't know just what you mean procedure.

Q. Well, first of all, perhaps we should ask you, did you have anything to do with putting this structure together?

A. No, not really. I waited on Mr. VALLIERE to finish thi stuff.

Q. So you didn't shoot the pins in?

A. No, I didn't.

Q. And you didn't put on the adaptors?

A. To the best of my memory, I didn't put them on.

Q. You didn't put on the rods?

A. Not to the best of my memory.

Q. Nor the unistrut?

A. Not to the best of my memory.

Q. Mr. VALLIERE did all of that?

A. Yes.

Q. Mr. VALLIERE talks about a discussion he had had with Mr. WALKER about the safety of that particular hanger and the way it was fastened to the beam; do you recall being a part of that conversation?

A. I wasn't a part of that conversation.

Q. Do you have any idea whether that conversation took place?

A. No.

Q. Mr. VALLIERE said also that he, I don't want to repeat his exact words, but I think in essence he indicated to you that you should proceed with great caution; do you remember that?

A. Yes.

Q. Now, had you ever seen this type of method used before in terms of hanging conduit or pipe?

A. I would have to say no.

Q. Were you alarmed by this particular method?

A. I didn't give it any real serious thought.

Q. In short, this was your job and you did what you were told?

A. That's right.

Q. Now, at some point of time did you - incidentally, at some point of time there were hangers, I gather, put up on the beams of the ceiling?

A. Yes.

Q. Do you recall how many of them were done?

A. I thought there was two.
Q. That's what you remembered anyway?
A. That's what I remembered.
Q. Now, there came a time that you and Mr. VALLIERE proceeded to hang pipe or conduit?
A. Yes.
Q. Now, in your own words, tell us just how that was done?
A. The way I recall it, if I remember right, we connected two conduits on the ground together.
Q. In other words, you essentially coupled two conduits together?
A. Yes.
Q. That's - okay, go ahead.
A. And we proceeded to carry them up the ladder.
Q. Were you, did you carry them in your arms, in your hands or how did you carry them up?
A. We carried them on the shoulder.
Q. Would you be facing in a particular direction for that or what?
A. It would seem to me we were facing each other, but I....
Q. That would be the normal procedure?
A. It would seem to me, yes.
Q. All right, then go ahead; you proceeded together up the ladder?
A. Yes.
Q. Now, do you recall who put his end through first?

A. I can't recall who put his end in first.
Q. At some point in time, did you put your end through?
A. Yes, I did.
Q. Now, as I understand your testimony, we're now talking about twenty feet of conduit pipe?
A. Yes.
Q. Now, incidentally, do you know, have any idea how much just one ten foot section weighs?
A. I believe somebody said that it weighs seventy-six pounds yesterday.
Q. Well, is that square with your feeling about how much they weigh?
A. I guess between seventy, eighty pounds, I think that's the weight.
Q. Other times you might have thought they weighed less than that?
A. Yeah, I would say probably. I really don't know.
Q. But in any event, when they were together the fact they did weigh the seventy-six pounds, together you were carrying one hundred fifty pounds?
A. Yes.
Q. Of weight. And you had twenty feet of pipe?
A. Yes.
Q. Rigid pipe?
A. Yes.
Q. Now, you don't recall who put theirs through first, but you do recall or do you, putting your end through?

A. Pardon? I didn't get it.

Q. Strike that question. I'll try to rephrase it.

You said you do not remember who put his end through first, is that correct?

A. Yes.

Q. But do you remember putting your end through?

A. Yes.

Q. Could you tell us what you remember about putting your end through?

A. We, I, we set it through the, this, what was referred to as a hanger or a trapeze, we slid, I slid my end through.

Q. You say you slid it through?

A. Yes.

Q. Could you be more specific than that?

A. Well, I mean we lifted it up and worked it through gradually.

Q. Did you do this rapidly or did you shove it; what sort of speed or gait were you working at?

A. It was done very slowly.

Q. Why so slowly?

A. Because, I think - there was weight and you were on ladders and there was precaution used; nobody likes to get hurt.

Q. Now, do you recall getting those two lengths of conduit in place?

A. Yes, I do.

Q. Did you then do something?

A. I went down my ladder but I can't recall what for. I had gone down to pick up something, but I just can't recall what it was for.

Q. And did you then come back up the ladder?

A. I started to come back up the ladder, yes.

Q. Now, let me tell you, let me ask you a question just to clarify in terms of your memory of what happened. I think Mr. VALLIERE indicated that when he did his end he removed this unistrut on one end and slid it over, put the pipe through and then slid the unistrut back and coupled together; is that the way you handled your end?

A. No.

Q. This was in place when you went up the ladder?

A. Yes.

Q. And so that you just put it through?

A. Yes.

Q. Okay, I think we've now got you back up the ladder. Now, you came back up the ladder; then tell us what happened.

A. I know when I got up the ladder and the pipe fell.

Q. And the pipe fell; did it fall on you?

A. It, the pipe didn't hit me, it hit, struck the ladder on the way down so that it bounced off the ground. I really don't know, recall what happened, but I was thrown off the ladder.

Q. It hit the ladder and you were thrown off?

A. Yes.
Q. And you landed, I assume, on the ground floor?
A. Yes.
Q. Tell us, you know, just what your physical condition was when that happened?
A. When I hit the ground, I just didn't know what had happened. I was in so much pain I couldn't, it was really almost unbearable, the pain that I was in from the fall. I just couldn't believe it.
Q. Do you have any idea how long you laid on that ground?
A. Not very much. I have no idea, no.
Q. Incidentally, how high up on the ladder were you when...
A. Approximately, maybe eight, ten feet, hard to say exactly.
Q. And did at some point some people come around and help you?
A. Yes, after the accident there was a number of people gathered around.
Q. Do you know whether anybody else either was a part of this accident or witnessed it other than yourself and Mr. VALLIERE?
A. I don't know. As far as I know, there wasn't.
Just the two of you?
A. Yes.
Q. There might have been other people in the room but you don't really recall one way or the other?
A. There might have been but I don't recall.

Q. Now, I guess we've got you to the point where you're on the ground; as I recall, you don't recall how long you were there but people gathered around, and at some point of time were you given some assistance?

A. Yes, they called an ambulance and I was picked up by an ambulance.

Q. And where were you taken?

A. I was taken to the Medical Center Hospital in Burlington emergency room.

Q. Now, do you recall what they did for you in the emergency room?

A. Well, they wheel you into a room which is quite normal. I think they gave me a shot for pain because they could see that I was in a lot of pain. The nurse gave me a shot quickly after I was there.

Q. Where was, where were you having this pain?

A. It was in my leg. I couldn't, I couldn't pinpoint any specific place; it was all through the leg from the hip down.

Q. Now, at some point in time were you removed from the emergency room to some other room?

A. Yes.

Q. And do you recall the nature of that room?

A. It was a hospital room.

Q. And do you recall what was done for you at that time?

A. I was put into traction.

Q. Could you describe, just again, in your own terms, what

that traction was?

A. The traction is a device that puts weights on your leg to make it, to stretch it or so you won't bend it I guess, really.

* * *

Q. During your jobs as an industrial electrician, had you ever seen large conduit being hung even though you didn't participate in it yourself, again, before the date of your accident; I'm talking about your experience?

A. I would have to answer no to that, not rigid. "Thin wall", yes.

Q. Large thin wall conduit?

A. Yes.

Q. Incidentally, you have indicated, I believe, that you were not familiar as of the date of your accident with the Hilti equipment?

A. Right.

Q. Before that, you were familiar with other similar competitor's equipment; for example Ramset, isn't that correct?

A. I had seen them, yes, I was somewhat familiar with them.

Q. A powder-activated tool which draws a stud into concrete or steel was no open surprise to you on the day of this accident?

A. No.

Q. What training have you had in this occupation from any source?

A. As an electrician?

Q. Industrial electrician or industrial electrician's helper; were you perfectly self-taught, that's what I'm after?

A. Before I went to work for, under the union?

Q. Yeah.

A. I didn't have any.

Q. Have you had, did you get any training after the time you began to work as a permit man in the union?

A. Could you repeat that?

Q. Did you get any training of any kind independent from

your job after you went to work as a permit man?

A. Well, when you're a helper you've got, you are being trained.

Q. You were a helper?

A. Basically, yes, that's what it would be considered as.

* * *

Q. Do you recall his testimony on the stand concerning his conversations with Mr. WALKER?

A. (No response)

Q. Mr. VALLIERE's?

A. Do I recall his testimony?

Q. Uh huh.

A. Yes.

Q. It's your testimony here, however, that you did not hear those conversations, is that correct?

A. Yes.

Q. Do you recall what time you arrived at work on that morning?

A. I forget whether we started at seven or seven thirty.

Q. Early morning?

A. Yes.

Q. Do you recall when that you began to hang the conduit with Mr. VALLIERE?

A. Oh, I'd say approximately 9:30 maybe.

Q. There was a period of time from the time you arrived at work until you actually began the job?

A. Yes, there was.

Q. Do you recall that Mr. VALLIERE asked your opinion concerning the trapeze?

A. He didn't ask my opinion.

Q. Do you recall having any discussion with him whatsoever concerning hanging the conduit in this manner?

A. No.

Q. Do you agree that from the time you received your instructions as to hang conduit that some two hours

went by before you started?

A. I couldn't agree or I just didn't keep that close track of time.

Q. What did you do during this period between the instructions were given and the job actually started?

A. I can't remember.

Q. Did you work during that period?

A. Well, I must have been working. I don't like to sit around.

Q. Did you leave the room that you were in with Mr. VALLIERE at 7:00, 7:30 in the morning or did you stay with him in that room?

A. It was a big building. I can't say I stayed with, right in that room with him.

Q. Do you recall leaving the room, going somewhere else to do other work?

A. No, I don't.

Q. But it's your testimony during that two hours you and Mr. VALLIERE never discussed this?

A. No.

Q. That's not your testimony?

A. I mean yes, it is; we didn't discuss it.

Q. Did Mr. VALLIERE tell you that you should be very careful in hanging this pipe?

A. When we were hanging the pipe, at the time.

Q. Did he tell you why?

A. No.

Q. Did he tell you to keep looking up at the pipe, it will break and fall?

A. No.

Q. You are saying that Mr. VALLIERE did not tell you that or are you saying that you don't recall him telling you that?

A. As far as I can remember he didn't, you know, he didn't tell me that.

Q. He had no discussion with you except to be careful?

A. To be careful when we hung the pipe, right.

Q. Did he explain himself at all?

A. Not that I remember.

Q. Do you recall sway bracing was used when these hangers were placed?

A. (No response)

Q. Do you recall installing the sway bracing or seeing Mr. VALLIERE install the sway bracing?

A. No.

Q. I believe you - strike that please. It was your testimony and you recall it different from Mr. VALLIERE that you actually descended the ladder with two sections already coupled together, is that correct?

A. Yes.

Q. Twenty feet of about a hundred and fifty pounds?

A. Yes.

Q. Now, I may have misunderstood something you said, but did you say during your direct that you were in fact

had not been used to lifting that type of weight before this job with Philip RENZI?

A. I had not run that kind of conduit before.

Q. The conduit that you had run before was all thin wall or light conduit?

A. Yes, or else it was something in ground.

Q. You also indicated that, I believe again on your direct and correct me if I'm wrong, that you went back down the ladder and back up the ladder before the conduit came down, is that correct?

A. Yes.

* * *

Q. I'd like to end our discussion by asking you about the manner that you installed this conduit. Isn't it in fact the truth that you placed the conduit in the hangers and then slid the conduit along the strut, unistrut?

A. The conduit is, was lifted up and moved along the strut.

Q. You did not - I was confused by what you said on your direct and led me to believe that you held the conduit above the strut and moved it through without letting it touch the strut. Now, that wouldn't be so, would it?

A. Could you repeat that again?

Q. Did you mean to suggest in your direct testimony that as you pushed the conduit through here you did not allow it to contact the strut?

A. (No response).

Q. Or in fact did you slide it right along the strut, set

it there and push it along so that it would slide: is that in fact what you did?

A. It was put through, through the hanger, but by probably, you know, lifting it up and setting it down.

Q. And then sliding it or pushing it?

A. I don't - there was no sliding done.

* * *

Q. Now, let's just answer the question because this is really what's involved. Just answer this one in your own memory and answer it honestly. You were putting this conduit up?

A. Yes.

Q. Mr. VALLIERE had the front end, he put his end through first, is that correct?

A. Yes.

Q. And then it was your job to put yours through?

A. Yes.

Q. Did you put it through?

A. Yes.

Q. Did you slide it along the unistrut or did you put it through?

A. We put it through.

Q. Now, let me just ask the question about your drinking, Frank. Was there a day in your memory that you did not go to work because you were drinking?

A. No.

* * *

Q. South Burlington. Will you describe to the Court and jury what your occupation is?

A. Superintendent for electrical contractor.

Q. Which electrical contractor is that?

A. OMEGA Electric Construction Co., Burlington, Vermont.

Q. Do you have a Master's Electrician license?

A. Yes, I do.

Q. How long have you had that license?

A. Since the State started for the State license and I've had the Burlington for about ten years now.

Q. How long have you been involved in the business of electrical contracting?

A. Approximately eighteen years inside and four years outside line work.

Q. You've had experience in many phases of that business?

A. Right.

Q. And you had experience in hanging heavy rigid conduit, conduit like you see down here?

A. Yes.

Q. In hanging - excuse me just a moment. This exhibit is on the way to growing into this exhibit so I'll put the two with you. I'd like you to look at these two exhibits. You can see that this exhibit is the same as this exhibit except we put the adaptors on the pin, the rods on the unistrut.

A. Right.

Q. What are those things in the beam?

A. The studs.

Q. Do you know from looking at them what type of studs they might be?

A. There's quite a few manufacturers making them, HILTI.

Q. Other manufacturers also make them?

A. Yes, RAMSET there's BLACK & DECKER, there's quite a few.

Q. Are the studs of the different manufacturers interchangeable; can you put a, let's say a RAMSET stud in a HILTI tool and vice versa?

A. Some of them are but I don't think HILTI you can.

Q. Now, let me just tell you that this was used by placing these two studs here to two adaptors and rods and then by bolting on the unistrut to hang conduit of that type. Have you ever hung conduit like that?

A. No.

Q. Could you tell the Court and jury why not?

A. Because I preferably break the small stud.

Q. In hanging conduit in your experience, how have you done it?

A. With a beam clamp. Or you can weld the unistrut to the beam.

Q. I'm showing you one of the HILTI pins that has been marked Plaintiff's Exhibit "1". Could you tell me what would happen to that if it were bent?

A. It's hard steel so it would break.

Q. Would you say that statement holds true for any hard steel fastener?

A. Yes, I'd say so.

Q. Would you say that this is or is not common knowledge in that business?

A. For experienced personnel, I'd say yes, it is.

Q. For people who have Master's electricians licenses?

A. Or Journeyman.

Q. Or Journeyman?

A. (Nodding).

Q. You would then say that it's common knowledge in that class of people?

A. Yes.

Q. When you're on a job, is it true that you use specifications?

A. Yes, part of the job.

Q. What do you use those specifications for, how do they fit into the work you do?

A. It describes the material, the manufacturers, the types and so forth and instructions how to put it together more or less.

Q. Do you change those specifications without consulting the engineer?

A. No, they have to be changed through approval through them.

Q. I seem to have misplaced an exhibit. Well, it will be

out again. I'll find it later. Assume that the specifications for this job stated that air-hung conduit should be installed with Steel City Kindor fittings; have you ever heard of Steel City Kindor fittings?

A. Yes.

Q. What does that company do?

A. They make kindor, have unistrut; there's a lot of manufacturers make that, and then they make fittings, beam clamps, angles, bolts.

Q. Now, is this the catalog of that company?

THE COURT: MR. PAYNE, would you speak closer to the microphone, not right on top of it but a few inches away because your voice isn't carrying over the system, I don't think.

A. Okay. Yes, it is and they have all the material in here, looks like.

Q. Let me show you also what's been marked as Defendant's "B-2"; that's Defendant's "B". Could you describe what that is?

A. Grinell (inaudible), but we don't normally use those; they're more or less plumbing.

Q. Similar sorts of business except this is electrical and this is plumbing?

A. These are mostly plumbing fittings; Grinell's mostly mechanical plumbing.

Q. Does Steel City Kindor fittings include fittings to

fasten the suspension system to the beam?

A. Yes, they have a total arrangement of fittings that will do almost anything.

Q. As well as fasten to the beam?

A. Right.

Q. Do you know if Steel City Kindor uses a fastener like that?

A. I don't believe they have power-activated tools, not to my knowledge.

Q. Do you know if their systems allow for bending?

A. To my knowledge, I don't know of any company that puts in anything stating that you can not bend that.

Q. Say that again.

A. To my knowledge I don't know of any company that puts out a catalog that states whether you can bend them or not.

Q. And that's common knowledge in the industry that you can't?

A. I'd say yes.

Q. Do the suspension systems in this catalog include systems that will take bending?

A. (No response)

Q. Swivel systems for example?

A. Yes, they have a swivel hangers, beam clamps.

MR. SAXER: Nothing further.

CROSS EXAMINATION BY MR. BRYAN:

Q. You work in the Burlington area, do you sir?

A. Yes, we work all over the State of Vermont and New Hampshire.

Q. I see, and I take it you were hired by Mr. SAXER to come in and testify in this matter?

A. Well, I was asked if I would come as a witness.

Q. Did he ask you or did the company ask you?

A. He did.

Q. I see, and all the information you've gotten in this matter has come from him alone, is that correct?

A. On this thing here?

Q. Yes.

A. Yes.

Q. You haven't gotten any information by, except for maybe when you were here before lunch, of hearing any of the testimony or any of the expert witnesses in this case?

A. No, I haven't.

Q. I see. And you were never at the jobsite in question where this...

A. No.

Q. ...matter happened, and you really don't know that much about the application that was to be done that day, the work that was to be done on that particular job, is that correct?

A. No.

Q. I see, and you really don't know what the end result was supposed to be of this hanging of this conduit, how

they were supposed to do it, what was supposed to be supported by it in the end, is that correct?

A. No, but this is a normal procedure.

Q. Right. But this is what you were told by Mr. SAXER?

A. No, I'm saying that from my own experience.

Q. Yah, I mean, you know, you got this idea entirely from Mr. SAXER; you never reviewed the job specifications or went to the jobsite on this particular..(inaudible)?

A. No, but we do use HILTI.

Q. Is that correct?

A. Yes.

Q. And you do know that these studs when they're driven into steel are advertised to hold a weight in each, each one of these, in a weight in excess of a ton; are you aware of that?

A. Yes.

Q. I see, and you think that these would break real easy if you went to twist them?

A. Not easy, but it will break.

Q. And, but they're pretty tough metal, is that right?

A. They're hard metal. That's why they won't bend and come back.

Q. Yes, but they're brittle?

A. No, I wouldn't say they're brittle.

Q. You say they're just a hard metal?

A. Yes.

Q. They're not like a nail that you can bend very easy?

A. No, they're not a soft metal.

Q. And you're aware that they're advertised to hold in excess of a ton?

A. Yeah.

MR. BRYAN: That's all we have.

MR. SAXER: Nothing further.

EXAMINATION BY THE COURT:

Q. I have - what, does the cataloging or information contained in the catalog as far as shear capacity mean to you?

A. That's supposedly safe load and that may be and probably is with anything bolted tight, but if it can bend at all it won't hold it.

Q. Well, you mean, what do you mean if it's bolted tight?

A. I mean if you took another piece of metal and put on and run a nut down tight, then you'd have the full strength. But if it can bend with leverage like that you can't hang much on it.

Q. Where would the shear force be applied?

A. Either straight across or straight up or down whichever may be.

Q. On a 90-degree plane either vertical or horizontal?

A. Right.

* * *

(WITNESS EXCUSED AND WITHDREW)

T-H-E-O-D-O-R-E R-A-Y S-M-I-T-H, having been called as a witness, was duly sworn by the Clerk and testified on his oath as follows:

DIRECT EXAMINATION BY MR. SAXER:

Q. Mr. SMITH, where do you reside?

A. Colchester, Vermont.

Q. And what is your occupation?

A. Sales representative for the HILTI fastening systems.

Q. And what is your territory?

A. State of Vermont.

Q. How long have you been employed by HILTI?

A. Five years.

Q. Has the State of Vermont always been your territory?

A. Yes.

Q. Now, when you took this job, when was it, 1970?

A. Yes.

Q. Did there come a time when you met Mr. HUVA, Hans HUVA?

A. Yes.

Q. You know Mr. HUVA?

A. From the job, yes.

Q. When did you first meet him?

A. It was either in - they were doing either a school at the Middlebury College or at the same time perhaps at the University of Vermont.

Q. And what was your purpose in getting together with

Mr. HUVA?

A. Well, I received a telephone call that we had an answering service, telephone message, from Philip RENZI & Son, to please call on the jobsite, that they would like some HILTI products.

Q. And did you go to that jobsite?

A. Yes, I did.

Q. Who did you speak to there?

A. Hans HUVA.

Q. And he worked for?

A. Philip RENZI & Son.

Q. Now, a few questions about Philip RENZI, if you know the answers. Was Philip RENZI using the HILTI line of equipment before you saw Mr. HUVA?

A. When I came to the job they had HILTI equipment.

Q. Did they have, for example, Hilti PX-100 tool?

A. Yes.

Q. Stock of some fasteners?

A. Yes.

Q. Were they using them on the job that you visited?

A. Yes....

Q. Well....

A. You see, I was going to say part of the job is you observe in looking around, you walk on the job, you see what's going on and this is what I observed.

Q. Uh huh. They were using HILTI equipment?

A. Yes.

Q. Now, prior to this time, had anybody from that job called you and asked you how to use the equipment and the fasteners they already had?

A. No.

Q. On that day when you saw Mr. HUVA, what did he ask of you, what did he want?

A. The first time I was there, was in June?

Q. Well I think that's been referred to so let's go right up to the day he purchased...

A. The day in question.

Q. The day in question, yes.

A. He inquired about fasteners, what we call the W-611-22S-12, which is a threaded stud for fastening into concrete.

Q. Uh huh, and he called you to come there for that purpose?

A. Yes, he did.

Q. To make that inquire?

A. Yes.

Q. What did you tell him?

A. I said thank you very much, I went out in my truck, got the fasteners, wrote up the order.

Q. Did he tell you what he was purchasing these fasteners for?

A. No.

Q. Did he tell you how he was going to use them?

A. No.

Q. Did he ask you how much weight they would hold?

A. No.

Q. Did he ask you to see charts showing how much weight they would hold?

A. No.

Q. He did not ask you to see the chart?

A. No.

Q. Did you show it to him?

A. No.

Q. How did he see the chart?

A. Well, in, as a salesman you don't act like a stone wall. So you just don't say okay, yes, write an order and walk out. You just hold normal conversation as you're doing things talking to the man so that you try to build up a friendly relationship because you know your livelihood depends upon how well you get along with people and how you, they react to you and how you react to them, so consequently, in the form of the conversation, turn of the conversation, he asked if we had any fasteners for steel.

Q. Uh huh.

A. So I said yes, we do, and he said what are they and I explained that it's basically the same fastener that we have for fastening to concrete but it's not as long in the shank end of it. Then at that point well, what do they do, how do they work or how much do they hold, so, you know, it might sound like you're saying a lot but to say well, here's the

fastener for concrete which he already has, I go to the truck and I pick out a box and I show him, this is a stud for steel. And he says how much do they hold? I said that's a good question, let me find out, so I have a catalog from, of materials, and it's a weight chart showing how much it will hold in steel.

Q. Did he ask you at all anything with regard to the bending of these fasteners?

A. No.

Q. You had no knowledge of what he was using them for?

A. No.

Q. Incidentally, you make a commission on your sales, is that correct?

A. True.

Q. Do you recall how much a box or two of E.W.-6 studs cost?

A. E.W.-6?

Q. Yes, E.W.-6; do I have the number right?

A. At that time roughly thirteen, fourteen dollars for a box of a hundred.

Q. So you sold a couple of boxes on that day?

A. One box.

Q. All right. Obviously, you don't get rich selling one box of studs on, even on a commission?

A. Well, I take that back. I had already sold them five boxes of concrete studs but in the steel studs

only one box.

Q. Now, your type of sales business depends on the continuing contact with him, doesn't it?

A. Yes.

Q. In other words, if you're selling an item for $13.00 a box, you've got to hope he'll call you very often to make a living?

A. That would be considered true, yes.

Q. Now, in addition to selling....

A. I might add it can be more complex than...(inaudible).

Q. In addition to selling products, do you provide any services through your company?

A. Yes.

Q. What type of services?

A. We have at our disposal engineers, technical people that can advise in terms of construction fastening, in particular HILTI fasteners.

Q. Where is the engineering department so-to-speak?

A. In Stamford, Connecticut, our home office.

Q. Did your company literature at that time advise your customers that you provided this service, if you recall?

A. Yes, I think so at that time, yes.

Q. Is Herb HENKEL (phonetic) one of the engineers at the company?

A. Yes.

Q. Did Mr. HUVA ask you for this service?

A. No.

Q. Did we ask Mr. HENKEL for this service?

A. No.

Q. I mean did I?

A. No. You mean...(interrupted)

Q. Yeah. Did we ask him what he might have done had he received the request?

A. Yes.

Q. And is Defendant's "G" here for evidence what he drew?

A. Yes.

MR. SAXER: I have no further questions.

CROSS EXAMINATION BY MR. BRYAN:

Q. Mr. SMITH, let's go back to the beginning a little bit and tell me what you did prior to when you came to HILTI Co.?

A. I worked for the New Hampshire Heart Association.

Q. And before that?

A. In New Jersey Heart Association, Essex County Heart Association.

Q. And did you go to college?

A. Yes, I did.

Q. And where did you go to college?

A. Eastern Illinois University.

Q. What is your degree in?

A. Bachelor of Science in liberal arts.

Q. And your work when you left college went to what type of

endeavor; what kind of work did you do predominately?

A. When I got out of college?

Q. Yeah.

A. I'd say office type work. Is that what you're referring to?

Q. Yeah. That was the nature of your employment?

A. Yes.

Q. And you, I take it, before you went to work for HILTI, you ended up somewhere in the New England area; where would that...

A. In New Hampshire.

Q. How long did you live there?

A. Three years.

Q. And there came a time you came to Vermont?

A. Yes.

Q. When was that?

A. Late 1969, 1970.

Q. Okay, what was the occasion for your coming to Vermont, how did you happen to come to Vermont?

A. I had an endeavor to go into business for myself.

Q. What kind of business?

A. I think at the time it was a vending machine business.

Q. Was there another fellow you were supposed to go in with?

A. Yes.

Q. And I take it he died in an automobile accident and that venture never got going?

A. Right.

Q. And this was approximately what time of - we're talking about 1970, what time?

A. Oh, probably the winter of 1970 which would be January, February, March, something in there.

Q. And there came a time you got hooked up with HILTI, is that right?

A. Yes. I just - the "hooked up" business, I didn't like that, I'm sorry.

Q. Well, you and they came together; let's put it that way?

A. Yes.

Q. How did you come together?

A. I answered an ad in the paper.

Q. And then what happened?

A. Had job interviews.

Q. Where?

A. In Burlington I met my immediate superior in a motel.

Q. What's his name?

A. Pierce SMITH.

Q. No relation?

A. No relation.

Q. And he was from where?

A. He's from Tilton, New Hampshire.

Q. At that time did HILTI have a sales representative in Vermont?

A. No.

Q. Did they have one in New York?

A. Yes. New York did you say?

Q. Yes, New York State?

A. Yes.

Q. Did they have one in New Hampshire?

A. Yes.

Q. How was the Vermont area covered prior to your coming to HILTI?

A. It was half covered out of New York and half out of Vermont. (sic)

Q. So you were taking up new territory in the sense that they were pulling in their horns a little bit in New Hampshire and New York and you were going to push out the area a little bit in Vermont, expand it but keep it as a unit, is that right?

A. Yes.

Q. So you - when did you have this meeting with your superior?

A. When?

Q. Uh huh?

A. I would say in late March, April '70.

Q. And when did you - what, what did you do - you got the job I take it?

A. Yes.

Q. And then they just didn't put you out on the road, I presume?

A. No.

Q. What did you do?

A. Before I started or when I started?

Q. When you started, as you got started?

A. Well, I had numerous meetings and contacts with my boss at the time in New Hampshire, went on the road with him to observe the proper way, or involved in selling HILTI fastening systems.

Q. In fact, you spent a, about a week down with him on the road?

A. Yes.

Q. Then you came back here and you got your own truck?

A. Yes.

Q. Okay, did there come a time you went to Terrytown, New York to get training from the HILTI Co.?

A. Yes, in depth.

Q. When was that?

A. Probably late July - I'm not sure.

Q. How long were you down in Terrytown?

A. A week.

Q. And that was the place where they went in depth into all the different applications, methods of using the products, what the product was really, all about from a fairly technical point of view and how to be a good salesman, isn't that correct?

A. (No response).

Q. They gave you a complete breakdown of what the company was about?

A. Well, no, I had a complete breakdown with what the company was about before that.

Q. Why did they send you to Terrytown?

A. Pardon?

Q. Why did they bother to send you to Terrytown?

A. Why did they bother to send me....

Q. It was a training aid, was it not?

A. Oh, yes.

Q. And that was the first intensive training you had had from the HILTI Co. was when you went to Terrytown, isn't that correct?

A. No.

Q. Well, where did you get your intensive training other than riding the road ahead of time?

A. Well.....

MR. SAXER: Your Honor, I object to the word intensive...(simultaneous voices)

THE COURT: We'll allow the question.

A. Well, it's a matter of interpretation of intensive training but I received, my boss was in the field for quite a while before this and he's been selling HILTI for quite a while. I thought I received pretty good training from him.

(PLAINTIFF'S "14", LETTER DATED 10/15/74 FROM MR. HOFF TO MR. SAXER, MARKED FOR IDENTIFICATION)

Q. I show you a letter dated October 15th and ask you if

there's some date set forth in there?

A. (No response)

Q. Just yes or no.

A. Yes.

Q. Is that not a letter that Mr. SAXER wrote to Mr. HOFF setting forth that your first attendance at the HILTI training school was August 23rd to 28th, 1970 and was not that information given to us in response to our inquiry?

A. Yes.

Q. Okay, so to refresh your recollection then it was August of 1970 when you first went to the training school, is that right?

A. The training school, yes.

Q. Yeah, okay. Now, just tell us a little bit of detail what you did at that training school?

A. (No response)

Q. What did you learn there?

A. Oh, I'd say more in depth in regards to the fastening system of HILTI, the fasteners, the tools, the applications, sales technique, the company benefits.

Q. And it took you - in fact, you spent a whole week doing that, is that correct?

A. Yes.

Q. And they went in fairly technically in depth about what these HILTI fasteners and tools were all about, did they not?

A. Yes.

Q. Now, you came back up to Vermont I presume, after you had your week on the road with your superior in HILTI Co. and you got a truck of your own, is that correct?

A. Yes.

Q. And it was sometime shortly after that that you met up with Mr. HUVA?

A. Yes.

Q. Is that correct?

A. Shortly, yeah.

Q. In fact...

A. A month, yeah.

Q. ...this was, this meeting with Mr. HUVA on the sales you made to Mr., the Philip RENZI & Son, they were pretty early in your work up here in Vermont, were they not?

A. I'd say a month, two, let's see, May, June, it would be, probably be about two months.

Q. Now, I recall from your testimony that you came on the job and you said you spoke with Mr. HUVA and you were aware they were using your concrete fasteners?

A. Right.

Q. And in fact you came on the job and you looked around so you could see what was going on, didn't you?

A. Yes.

Q. And one of the things that you did discover was that

they were using your concrete fasteners?

A. Yes.

Q. Now, there came a time, as I understand your direct testimony, that Mr. HUVA said have you got something that will work in concrete? I mean - excuse me, steel, isn't that correct?

A. Yes.

Q. And...

A. That's your wording but that's....

Q. Yeah, but that's what you said, isn't it, on direct he asked you if you had something that would work in steel?

A. I don't know if he said would work. He said do you have something that would fasten to steel?

Q. Yeah, okay, then you proceeded to inform him about it, right?

A. Yes.

Q. In fact, you did show him the test papers, didn't you?

A. Yes, I did.

Q. In fact, you also showed him a sheet that was similar to Plaintiff's Exhibit "9" with those figures on it, substantially the same?

A. I sure did.

Q. And, in fact, if I recall your direct testimony, you said something to the effect, that's a good question; you didn't know how much they'd hold yourself, did you, off the top of your head?

A. No. In other words, I had a round figure but when you deal with people and you want to be decisive, you quote the correct figures. You don't....

Q. And you did want to be decisive?

A. Yes.

Q. You wanted to be precise; you wanted to make sure that your customer got all the accurate information that was at your disposal, is that correct?

A. It is, yes.

Q. So you proceeded to show Mr. HUVA the test report?

A. Yes.

Q. Now, it was quite apparent to you, I take it, at that time that he was not familiar with the steel, the pin for steel and the testers, is that correct?

A. Yes.

Q. And so this was, from what you could tell, his first familiarity with them sofar as you knew?

A. (No response)

Q. Yes or no?

A. Yes. I'd say - if this is what you wanted. yes.

Q. Now, he told you he wanted to hang from that, those studs, a stationary object, right?

A. Yes.

Q. Of some 200 pounds or so per stud; he wanted that kind of weight?

A. I don't recall 200 pounds, but I know - I don't even recall that much, but I just....

Q. Enough so that he was concerned about the test figures and it was important that he read it them - in your opinion?

A. I might add that...(interrupted)

Q. Well, no, yes or know. I mean enough so that it was important?

A. I don't know, you know, everybody does things differently, they operate differently, do different things. Now, sometimes a particular customer would try and bait you so this is why you want to be precise, so I don't know whether he had prior knowledge or not.

Q. But anyway, you wanted to be sure he had all the figures that were at your disposal?

A. Yes, right.

Q. And you knew he was going to hang something, some stationary object from an overhead.

A. I wasn't sure it was an overhead either.

Q. But you knew he was going to hang something?

A. Well, he said hang something, what would it hold from steel...(mumbling).

Q. Now, at the same time, he bought from you some adaptors, did he not?

A. Yes.

Q. And they were the - well, they were the adaptors that you see on, these we've been showing around the Court here?

A. Yeah, right, the one in question, yes.
Q. The three-eight, the quarter and three-eighths adaptor?
A. Yes.
Q. Something like that there?
A. That is it, yes.
Q. And he bought the same amount of adaptors and studs?
A. One box of each, yes.
Q. So that they, you knew that the two were to go together for this job of hanging a stationary object?
A. No, I didn't.
Q. Well, if you were going to hang a stationary object and the guy bought the two of them together, it's logical to assume he was going to use these two to hang in some portion at least, a stationary object, is it not?
A. Well, you know, you say it's logical; it may be logical to you, but in the fastening end of it there's many things you can do with it.
Tell me, did you or did you not know that he was going to use these two things together?
A. No.
Q. The stud and the adaptor?
A. Not necessarily.
Q. Is it your testimony here that you did not believe he was going to use the two together?
A. I didn't say that either, but I didn't....(interrupted)
Q. What did you think when a guy comes in and says he's

going to hang something from steel and he buys these two things together; do you think the two of them are going to be used together?

A. It's possible, yes.

Q. Didn't you logically assume they were going to be used together at the time?

A. I don't try to assume anything really.

Q. I didn't ask you that; I asked you....

A. You said it.

Q. Didn't you logically assume that they were going to be used together at the time, yes or no?

A. Could be yes, say yes, okay, if you want.

Q. He didn't say he was going to use these adaptors for anything other than these steel studs?

A. Well.....

Q. Yes or no?

A. No.

Q. All right. Now, how about three-eighths rods, did you make any assumptions about the use of three-eighths rods?

A. I didn't see any three-eighths rods on the job - I'm sorry, in the trailer or whatever.

Q. You didn't see any?

A. No.

Q. Did you make - to answer my question more precisely, did you make any assumption that this pin and this adaptor would be used with three-eighths rod?

A. No.

Q. You didn't. In fact, three-eighths rod never occurred to you?

A. It could have, yes, it could occur, yes, but also... (interrupted).

Q. At the time, now, you sold him the stud and the adaptor, did the 3/8 rod occur to you as a possible use that he might be making?

A. Possibility, possibility of a 3/8 bolt too.

Q. In other words, didn't you in fact assume that he was going to suspend something by use of a 3/8 rod?

A. No, I didn't assume - say that again, now, rephrase that, I didn't.....

Q. Okay, I'll try to make it clearer. Isn't it true that you assumed that with the stud and the 3/8 adaptor he was going to use a 3/8 rod?

A. No, I didn't.

Q. You remember the deposition we took in my office some months back?

A. Yes.

Q. Now, I ask you, when I, in the question on page 44, line four, did he say he was, what he was going to use this for, and did you say no, as I said in this general conversation that we had in regard to fastening to steel, as I recall he was going to hang a particular item from the steel beam, a stationary item, and I assumed that this coupling was to suspend from

your quarter-twenty side out of the steel, suspend it down and make a platform to hold something up. Question: He was going to put a 3/8 rod in there of some sort? Answer: Right. Did you say that?

A. Might I add that...(interrupted)

Q. Yes or no, did you say it or didn't you say it at the time your deposition was taken?

A. This particular, yes.

Q. All right.

A. Can I - you're taking that out of context again though.

Q. Well, I know I am and I'm just picking this out of context and your counsel will have the right to put anything else under your nose that he would like to on redirect. I mean you did say it, that's all I'm asking?

A. Yes.

Q. Okay. Now, you testified here that you really didn't inquire of Mr. HUVA very extensively what he was going to use this for, isn't that right?

A. Right.

Q. In fact it really never crossed your mind that the fellow was going to suspend something from a steel beam and he was going to buy a pin and adaptor like that, and at least one of the things that may have occurred to you was a 3/8 rod might be involved that perhaps you ought to question him a little bit

to see if he was doing it safely; that never occurred to you, did it?

A. No.

Q. Now, you've had a good bit of experience in these, well, I guess about five years now since this accident happened, isn't it?

A. Yes.

Q. Now, if some guy came along and said how much,have you got pins for steel, yeah, I want to suspend something from a steel beam, 00 pounds; you showed him your figures, and he bought something like this pin and something like that adaptor, you'd have a little suspicion, wouldn't you, that maybe this application isn't so good and you would now inquire a little more than you did then, would you not?

A. Did you say that he would, was going to hang something with 3/8 rod from steel?

Q. I didn't say 3/8 rod; I only said he was going to buy these two things and that he was going to suspend something, a few hundred pounds, and that he bought those two things. Now, after five years of experience you'd do a little more inquiring, would you not?

A. (No response)

Q. As to how the application was going to be put together?

A. Common sense will tell you that, yes.

Q. In fact, back at the time is it fair to say that you were

rather new on the job?

A. Yes.

Q. And one of your jobs in the field as well as selling, obviously you wanted to sell, you don't get paid unless you sell, but you sell more if you can find good safe, quick, fast and inexpensive applications for the customers to use, don't you?

A. I wouldn't say that in particular, the way you said it.

Q. Well, if you can find a new application and say, you know I can do this better for you; you do a favor for the customer and help HILTI out too, wouldn't you?

A. Yes.

Q. So when you go on a job, if you possibly can, you look around, put the old thinking cap on, and come up with new applications of doing things, don't you?

A. And safely, yes.

Q. Safety, one of the considerations?

A. Yes.

Q. Inexpensively, than what the guy's using now?

A. Yes.

Q. And if he's already using some of your products, maybe you can expand his usage, make it more convenient for him and a good customer for you too?

A. Yes.

Q. Logical, isn't it?

A. Yes, right.
Q. So thinking about applications is a significant portion of your work, isn't it?
A. I don't know about significant but it comes into play, yes, it plays a role, yes.
Q. You just don't dole these things out to guys who ask for them, you help them out? (Simultaneous voices)
A. Yes, I do.
Q. I mean that isn't your only function; they don't need you to do that, do they?
A. To do what?
Q. You can have just any old kid going around with a truck selling what they ask for, they wouldn't need a guy with your training?

MR. SAXER: I think the question is argumentative.

A. I'm not sure what you're talking about exactly.

THE COURT: We'll allow the witness to answer the pending question.

A. I didn't quite understand; you just said that you don't need any old kid, but...
Q. Well, there's no reason why that they need to send anybody to Terrytown, and send him around the road for a week; a fellow could call up and say give me some pins and adaptors; you could send a message boy over with them if all that was involved was just taking the products to the customer?

A. Well, this is the particular way that they market their product. I mean, you can do that and go right down to a hardware store and buy the same thing.

Q. You can't buy this in the hardware store?

A. Well, I should say a supply house where they buy things like that.

Q. If I wanted to buy one of these today, don't I pretty much have to call you?

A. No.

Q. Where can I get these HILTI pins and fasteners?

A. Now you said HILTI, but I...

Q. Yeah, HILTI.

A. Okay, HILTI you would have to buy from me in Vermont.

Q. And it would probably be cheaper for the company if they had a few far or less trained people just to spread these around than a fellow who they've invested some money in, wouldn't it?

A. Will you state that again? I'm not sure...

Q. It would be cheaper to have somebody they wouldn't have to pay so much or a fancy truck and all that; it would be easier to have somebody hand these out than it would be to have you go all over the State, isn't that true?

A. I disagree.

Q. Well, they wouldn't sell as many if they did, would they?

A. You never know, but that's their way of marketing

this particular i[illegible], but you can buy that in a local supply house.

Q. What brand?

A. What brand?

Q. Uh huh.

A. I'd say I can name you five, four maybe; Ramset, Bower; Welch Supply sells Bower I guess it is; Remington.

Q. But these folks don't offer any on-the-job supervision of how to use their product, do they?

A. No. By the way that is why I sell more than they do.

Q. I wouldn't be surprised. Mr. SMITH, is it possible, is it possible that you discussed this particular application with Hans HUVA in some greater detail than you led us to believe?

A. No.

Q. You say it's not possible that you went into some greater depth?

A. No.

Q. Do you remember that conversation all that clearly so that you know you didn't?

A. Well, if you read that deposition further, you'll find out what I said to Hans HUVA and what he acknowledged in his own statements.

Q. I read it.

A. So I know, I mean this is nothing to joke about I'm

sure, and I followed up with it, I was just as mad as the frenchy, Mr. VALLIERES, that it came down, the pipe fell down.

Q. On page 82, down at the bottom, and is it your testimony categorically you did not require, inquire or you could not remember? Your answer: I don't recall exactly, you know, inquiring exactly how he was going to do it, no. The next page: Is it possible you did inquire and you have now forgotten? Answer: You said is it possible that I might have forgotten? Question: Inquire? Yes, I would agree. Was that not the accurate transcript of what you said at that time?

A. Anything is possible and in lieu of the statements that you make, anything is possible, sure.

Q. That's all I asked you a few moments ago, was it possible.

MR. BRYAN: Thank you.

REDIRECT EXAMINATION BY MR. SAXER:

Q. Mr. SMITH, I don't want to leave the jurors with the thinking that you're a boy that goes around in a van selling pins and adaptors; is there anything else on that truck?

A. Quite a bit, yes.

Q. There's some of these ?

A. HILTI powder-activated tools, yes.

Q. How much do one of these cost?

A. How much...

Q. How much do one of these cost?

A. At the time in question or now?

Q. Then?

A. Then. About a hundred five, hundred and ten dollars.

Q. Now, are there other tools on the truck?

A. There's, at the time, maybe three different powder-actuated tools, and..

Q. Drills?

A. We have a drilling and anchoring system too.

Q. Now, I may be wrong about this but is some of the equipment that you carried on that truck sold then for maybe three, four hundred an item, or am I too high?

A. Yes.

Q. Am I too high?

A. No.

Q. Have you ever met anybody who never saw these power-activated tools before, the hammer and all of that, who knew how to use it?

A. (No response)

Q. Is it part of your job to show people how to use the tool, how to put the cartridge in, how to put the pin in?

A. Yes.

Q. You did a great deal more than sell pins and adaptors?

A. Right.

Q. I'd like to recall with you, if you will, and read a

portion of your deposition that is on page 83, right below where Mr. BRYAN left off, the question, but you did know there was a one quarter inch fastener to be used in steel and a one fourth to three eights adaptor to be used and the adaptor was for a steel rod? Answer: Not necessarily steel rod; it would take a 3/8, we could have, maybe was going to pull something up to a 3/8 threaded bolt. And yourtestimony is you didn't know if it was a rod, bolt or whatever? Right. Do you want me to read the rest of the answer?

MR. BRYAN: You do whatever you want.

Q. Did your training encompass and tell you what to do if you were asked questions and didn't know the answer?

A. Yes.

Q. What did your training - did you have to go to the training school to get that training?

A. No.

Q. What was your training in that regard?

A. Well, if there was a particular question that was involving something more than I knew of it at the time, I could call my boss, I could - who was in New Hampshire, that night. I would, in all cases, tell the customer I don't know that but I'll get back to him with it and I could call the office in Stamford.

SMITH - redirect - Saxer

Q. Do you recall going up to the scene of the accident sometime after the accident?

A. Yes.

Q. Do you recall Mr. VALLIERES showing you what happened there?

A. Yes.

Q. As best as he could. Did you then go speak to Mr. HUVA about it?

A. Right, I talked to Hans afterwards.

Q. What did you say to him and what did he say to you?

A. Well, basically, when I heard about the accident I went to find Mr. HUVA first and he was, being a large construction site, he wasn't in the trailer and I couldn't readily find him right off, so I found Mr. VALLIERES who everybody there said he was at the site or at the scene of the accident, so I asked him to show me what had taken place. He showed me what actually had supposedly happened while he was there and then I went to see Mr. HUVA, and my first words with Mr. HUVA were you didn't tell me you were going to fasten conduit with this particular fastener.

Q. Uh huh, what happened then?

A. Mr. HUVA said that he was sorry, that it was his fault, that he and his company will take the responsibility.

MR. SAXER: I have no further

questions.

RECROSS EXAMINATION BY MR. BRYAN:

Q. Is there anything in the literature that you disseminate to your customers that you had at that time, that would tell anybody not to hang conduit in this fashion here?

A. (No response).

Q. With the hanger?

A. No.

Q. Is there anything in...

A. We don't purport to do it that way either.

Q. I understand, but there's no warning that says don't do it, is there?

A. No.

Q. Is there anything in the literature, in the brochures, any of the safety manuals, that you had from HILTI to distribute to the customers, that gives to the customer figures as to bending or torque strength on these pins? You can answer yes or no.

A. No.

MR. BRYAN: Nothing further.

REDIRECT EXAMINATION BY MR. SAXER:

Q. Mr. SMITH, I'm going to show you Defendant's "K" for identification, and ask you if you could just identify what it is, in a general way?

A. It's a catalog that comes in the HILTI X-100 box showing our fasteners, you might say our basic line

of fasteners that it that tool.

Q. This is the actual thing that comes with the tool itself?

A. Right.

Q. Now, I note that the date on this is actually 1971, but I want to ask you if such, are these pamphlets regularly republished?

A. Right.

Q. Did such a pamphlet exist in the HILTI tool boxes in 1970 and before?

A. Yes.

Q. I'd like to ask you what the bottom line on the first page of that manual says?

A. For instruction or advice on all fastening problems, please contact your local HILTI office for free technical assistance.

Q. And you testified that the manner of giving that technical assistance is through the company engineering department?

A. Yes.

MR. SAXER: We'd like to offer that into evidence.

MR. BRYAN: We have no objection to "K".

THE COURT: Defendant's "K" is offered I take it? Defendant's "K" is received.

MR. SAXER: Well, I have no further questions.

(PLAINTIFF'S "15", HILTI SAFETY PAMPHLET, MARKED FOR IDENTIFICATION)

RECROSS EXAMINATION BY MR. BRYAN:

Q. Mr. SMITH, you didn't sell the tool that Hans HUVA and his crew had on the jobsite there to them, did you?

A. No.

Q. So you have virtually no way of knowing of your own knowledge whether this was in fact included with the kit or anybody on the job had ever seen it, is that right?

A. Sure, the question was are they in the...

Q. Just yes or no.

A. ...box and they are in the box.

Q. Yeah, but you don't know whether this one, that box contained one of these or anybody on the jobsite had read it?

A. No, I have no knowledge.

Q. Now, I show you Plaintiff's "5" for identification and ask you if this is the similar sort of safety bulletin that was transmitted by you to customers at the time of this incident?

A. Yes.

Q. And what does that show generally?

A. This is the sales tool...

Q. What?

A. Sales tool in terms of describing the basic differences between high velocity and low velocity tools.

Q. It also purports to tell the customer something about the do's and don't's of managing a tool of this sort, doesn't it?

A. No, it doesn't.

Q. Well, what does it purport to do?

A. It just, as I said, demonstrates the difference between high velocity tool and the HILTI DX system of low velocity.

Q. Well, what does it say in there about the difference between the high and low velocity tool?

A. What does it say?

Q. Yeah.

A. Basically.....

Q. What does it say about the difference; I assume it describes a low velocity tool on the one hand and a high velocity on the other; what does it say about it, about each of them?

A. You want me to read it verbatim or how we use it or what we do?

Q. Yeah, tell me what it says in there about the low velocity and about the high velocity tool?

A. Well, basically it shows that in high velocity tools the fastener or stud is fired down the barrel with a, at high velocity. In other words, up to, it says here sixteen hundred forty feet per second. It shows the dangers of high velocity in that if it should hit a piece of aggregate or reinforcement it could spall

the concrete or ricochet.

Q. What do you mean by spall?

A. Gouge out the concrete.

Q. That's s-p-a-l-l, right?

A. Right. It shatters the, if it hits aggregate, of course steel, it shatters the concrete and makes it erupt.

Q. That points out some of the dangers; right?

A. Right, in high velocity tools, right.

Q. What's it say about low velocity?

A. Well, it shows that the, under the HILTI DX system - I'm sorry, it is the HILTI DX system it shows.

Q. Right.

A. It shows that the fastener is in contact with the work surface to begin with; it starts off with zero velocity; there is a steel washer for guidance; there is a piston that surrounds and protects the threads also giving it guidance, and that basically after you ignite the booster, it pushes the fastener to the work surface at less, low velocity, less than 300 feet per second. Once the piston is past the gas ports, the gases are vented, there's no more power behind the piston, so therefore it stops, it can only go as far as the piston pushes it.

Q. So this is a sales item to convince the customer that your method of doing things is a safe method, isn't it?

A. Yes, I didn't follow through to say that it will not, we don't fear the ricochet or the shoot through and fasten, yes.

Q. So this, the point of this was to convince the customer that, as it says on the front, that safety is very important and that HILTI has done something about safety, is that right?

A. Yes, I....

Q. It's a safer tool? Right?

A. Safer than high velocity, yes.

MR. BRYAN: I'd like to offer "15".

MR. SAXER: No objection.

THE COURT: Plaintiff's "15" is received.

Q. Do you have with you any safety manuals that show how to be safe and proper in applications?

A. How the customer should - I don't understand what you're saying.

Q. Well, do you have any application manuals that purport to be geared to safety, safe applications as opposed to unsafe applications?

A. We have application bulletins that are available, yes.

Q. You have safety written all over them?

A. No.

Q. In fact, they're from, primarily sales, they're sales bulletins, are they not?

A. No, it's an application bulletin.

Q. Yeah, but for sales purposes to help you sell the products?

A. It's to help the customer also.

Q. Same as this is?

A. That's to make the customer aware of the differences, enlighten them, yes.

* * *

J-O-H-N H. C-O-U-T-U-R-E, having been called as a witness, was duly sworn by the Clerk and testified on his oath as follows:

DIRECT EXAMINATION BY MR. SAXER:

Q. Mr. COUTURE, could you tell the Court and jury where you're from?

A. I'm from South Burlington.

Q. And what's your occupation, sir?

A. Consulting engineer.

Q. How long have you been engaged in that occupation?

A. I've had my own private business for about five years. Prior to that I was with Freeman, French & Freeman as their, head of their electrical department for fifteen years. Prior to that I was with the Ten Engineering Co. for five years as an electrical engineer.

Q. Now, Freeman, French & Freeman, were you with them in 1970?

A. Yes. No, I was not with them in 1970.

Q. When were you last with them?

A. I left them October 31 in 1969.

Q. Before you left the employment with Freeman, French & Freeman, were you involved in the drafting of the

electrical specifications for the project at the University of Vermont?

A. I was.

Q. Let me show you Defendant's Exhibit "A" for identification, and ask you if you could identify in a general way what it is?

A. Yes, this is the part of electrical specifications for the University of Vermont dormitory and it was listed then as Project Freeman, French & Freeman 1418, Project 16-B.

Q. Are these the specifications applicable to the hanging of conduit in air?

A. Yes, they are.

MR. SAXER: The defense offers Defendant's "A".

MR. BRYAN: Same as you had before?

MR. SAXER: Yes.

MR. BRYAN: No objection, Your Honor.

THE COURT: Defendant's "A" is received.

Q. Mr. COUTURE, and it's subparagraph "c" that sets forth the specifications on how to install the conduit, is that correct?

A. Yes, that's correct.

Q. Could you read the first of the introductory paragraph to

that, paragraph "c"?

A. Conduit shall be supported every five feet using hangers approved by the architect, furnished all kinds of conduit hangers and assemblies to architect for approval.

Q. Now, subparagraph "1", that has to do with conduit installed on surfaces, is that correct?

A. That's correct.

Q. What does subparagraph "2" have to do with?

A. That has to do with conduits that are supported in the air and I read here, conduits in the air to have sway bracing, to have 3/8 inch rods and Steel City Kindor fittings. All hardware to be galvanized or non-rust treated.

Q. Now, is this the type of specifications that we, would be applicable to the heavy three inch rigid conduit we see over there on the floor?

A. You mean this one right here?

Q. Oh, no, see the two large conduits on the floor?

A. Oh, yeah, yes.

Q. And this is the specifications that would be applicable to hanging that in the air?

A. Yes.

Q. Now, I notice that the specifications called for Steel City Kindor fittings, is that correct?

A. That's correct.

Q. Steel City Kindor fittings include the device that is

used to attach the hanger to the beam?

A. Yes, that's true, uh huh.

Q. Now, this is not a Steel City Kindor fitting but is this typical of the type of fittings sold by Steel City Kindor to attach things to beams?

A. Yes, I would say it's similar to Kindorf.

Q. Is this also, I don't know if this is a Kindorf or not, is this also the type of fitting that Steel City Kindorf sells to suspend heavy conduit?

A. Well, this looks like a water pipe, steam pipe fitting, but it's a similar type of fitting to Kindorf.

Q. There's some differences between steam pipe fittings and electrical pipe?

A. Yes.

Q. But basically they have a great deal in common?

A. Yes, that's right.

Q. And these two devices would be similar to what's in Steel City's - these two would be similar to what you mean by saying Steel City Kindorf fittings?

A. Yes.

MR. SAXER: The defense offers Defendant's "C" and "D" for identification.

MR. BRYAN: No objection.

THE COURT: Defendant's "C" and "D" may be marked for exhibits.

Q. Now, it's self-evident from your testimony so far that

engineers do draft the specifications for large, rigid conduit hung in air; is there a reason for that?

A. Well, the reason for the specifications in general is to establish a standard, and in this case here, the standard was established for conduit in general and in particular a name, a manufacturer was mentioned to indicate to the contractor what was, what the engineer intended as far as that standard was concerned. The, there's also in the specifications an indication that substitutions could be made provided they were in need, provided the equal was approved by the engineer.

Q. If a substitution was made, you'd have to approve it?

A. Yes, uh huh.

Q. Now, I'd like you to look at these two, and you looked at them briefly this morning before you took the stand; are the two pins that you see here Steel City Kindorf fittings?

A. Would you repeat that?

Q. Are these two pins to the best of your knowledge, Steel City Kindorf fittings?

A. No, they are not.

Q. Is this whole design that we see here now which is attached to this beam with these two studs, is that a Steel City Kindorf fitting?

A. The channel looks similar to the Steel...

Q. This is the channel here, is (simultaneous voices).

A. Channel, uh huh.

Q. ...is common. Was this design submitted to you for approval, your engineering approval?

A. No, it wasn't.

Q. If it had been, would you have approved it?

A. No, I wouldn't have.

Q. Would you explain to the Court and jury why not?

A. Well, because it's been my experience that this type of hanger creates considerable bending stresses on the studs and unless some type of swivel arrangement is used, the bending stresses make the hanging assembly unacceptable.

MR. SAXER: I have no further questions.

CROSS EXAMINATION BY MR. BRYAN:

Q. Is it paragraph "1" that you say, where it says conduit surfaces shall have Steel City Kindorf clips or clamps; is that the one that you referred to?

A. No, I'm referring to paragraph "2" here, conduits that are hung in the air.

Q. To have 3/8 rods?

A. Right.

Q. Stee' City fittings. I see there's no particular Steel City fitting that is specified though, is there?

A. That's correct.

Q. In fact, you, as you go from one place to another in the

building and you have to fasten onto or into different materials, the mechanic on the job would select which fitting was appropriate, is that correct?

A. That's correct.

Q. I see. In fact, over or throughout a building, there's practically no way to say, for an engineer to say precisely what to use in every single place in a building, something has to be left up to the mechanic on the job to figure out what's appropriate, is that correct?

A. That's correct.

Q. Now, you specified, you said something about the, being able to make substitutions; those, that is called an "or equal" clause, is it?

A. Yes, it is.

Q. That's in most all Federal contracts, is that correct?

A. Yes, that's correct.

Q. Now, does Steel City make the 3/8 rod and unistrut?

A. Yes, they do.

Q. Now, this 3/8 rod is pretty common stuff, isn't it?

A. Yes.

Q. In fact, on almost every job of this nature, you'll find this stuff lying around?

A. That's true.

Q. Were you employed by French, Freeman & French during the summer of 1970?

A. No, I wasn't.

Q. When you were employed by Freeman, French & Freeman, would you act from time to time as their agent for inspection?

A. Yes, that's true.

Q. In other words, you would go on the various jobsites that Freeman, French & Freeman were architects for, look at the, look at what was being done, approve any changes and so forth, is that right?

A. Yes, that's correct.

Q. Now, you, I take it, were not as you testified, I guess you testified you weren't working at Freeman, French & Freeman that summer, the summer of 1970, is that correct?

A. Yes, I left Freeman, French & Freeman October 31, '69.

Q. So you don't know of your own knowledge personally whether any request for changes and this sort of thing were made, is that correct?

A. That's correct.

Q. Now, when you do your inspection as the agent for the architect, you go on the jobsite and talk to the superintendent, see what they've done and approve or disapprove the various applications that may take the form of changes, is that correct?

A. That's correct.

Q. And often times you, in fact in a great many instances, you go on the job and you look at the change, it's

already made, already in place, and if he's done it in a decent way you say that's all right and approve the change, is that correct?

A. Yes, that's correct.

Q. And I believe Mr. SAXER asked you if you would approve this sort of change; I ask you hypothetically if you were to go on a jobsite and see this sort of thing installed on a sixty-foot span of rigid conduit, and at the time you made your inspection you found not only all this in place but you found that the conduit was additionally supported by concrete partitions along that 60-foot span.....

MR. SAXER: Objection. There's no testimony that the partitions were concrete. I believe the testimony was in fact that they were partitions.

THE COURT: We'll allow the question. Perhaps it would be better to modify your hypothetical to conform to the evidence.

MR. BRYAN: If I recall correctly, I think the evidence did contain that, Your Honor. I may be mistaken, but I think the jury would remember whether it was concrete or cement block or...

THE COURT: Very well.

MR. BRYAN: I'll assume that, but I'll be corrected if it's wrong.

Q. Assuming the partitions were put in place and they were made of some solid structure such as cement block or

concrete, would you then with this rigid structure in place and supported by the partitions, you might approve the whole setup?

A. Well, it, of course it depends quite a bit on the details, but in general I would say I wouldn't approve it because the partitions would prevent the sway in one direction but not in the other.

Q. How about if it were supported, if you were satisfied that once it was in place it wasn't going to move, would you approve?

A. You mean where they hadn't added sway bracing or something of this nature?

Q. Either a sway bracing or it was connected at the ends so it couldn't move; in other words, when you saw the whole thing in place and you were satisfied it was going to stay there, would you have approved?

A. I might have, uh huh.

Q. These pins by themselves as far as just tension strain are strong enough to hold the weight like that conduit, aren't they?

A. Yes, they are, uh huh.

REDIRECT EXAMINATION BY MR. SAXER:

Q. Mr. COUTURE, in the industry, it's common for manufacturers to have charts such as this showing the weight a fastener will hold in either tension or shear, is that correct?

A. That's correct.

Q. Do the figures for tension or shear give any indication whatsoever on the question of whether or not the fastener can be bent?

A. No, they don't.

Q. They are in fact what they purport to be, they say how much weight it holds?

A. Yes, uh huh.

(DEFENDANT's EXHIBIT "L" FOR IDENTIFICATION, PAGE 73 OF UNISTRUT'S CATALOG, MARKED)

Q. This is a piece of unistrut right here, or something extremely similar to what the company manufactures, is that correct?

A. Yes, that's correct.

Q. In a general way, I'm going to show you this catalog and could you tell the Court and jury what it is?

A. Well, this catalog in general is a listing, illustrations of many different types of hanging methods, and - how much detail do you want?

Q. That's all.

A. Yes.

Q. Now, that's the same company who manufactures this sort of stuff?

A. Yes, that's correct.

Q. It's fair to say that trapezes are reasonably common in the industry even if they're not Steel City Kindorf trapezes; trapezes are used to hang pipe?

A. Yes.

Q. I want to show you page 73 of this catalog which has been marked Defendant's "L" for identification, and ask if you could give a general summary of what's shown on that page?

MR. BRYAN: I'm sorry, I think at this time, Your Honor, that it is not an exhibit and it's in the process of identification, not an exhibition.

MR. SAXER: My intent here rather than offer the whole catalog was to take this page out.

MR. BRYAN: I have no objection if he identifies it. I just would like him to identify it rather than.....

MR. SAXER: I understand.

Q. Could you identify what that particular page in this catalog is?

A. Yes, this page here, at the top lists trapezes and swivel hangers. It indicates a similar channel to what we have here and it also indicates....

Q. Shows some hanging devices?

A. ...some swivel hangers, yes.

Q. With regard to the swivel hangers that are shown on that page, could you describe the characteristics that they have?

A. Well, in general, the swivel, this particular swivel hanger is a type that does not put any bending stress on the bolt or stud or device that holds the swivel to a beam or surface.

Q. It allows the movement, it stops the movement of the conduit before it reaches the fastener?

A. Yes, that's correct.

Q. In a general way, could the HILTI fasteners be used with swivel hangers?

A. Yes, they could.

* * *

R-O-B-E-R-T L. Z-I-N-K, having been called as a witness, was duly sworn by the Clerk and testified on his oath as follows:

DIRECT EXAMINATION BY MR. SAXER:

Q. Mr. ZINK, where are you from?

A. I live in Norwalk, Connecticut.

Q. And who is your employer?

A. HILTI Fastening Systems.

Q. How long have you been employed with them?

A. Uh, about four years.

Q. And what is your job title with HILTI?

A. General Counsel.

Q. Now, Mr. ZINK, you've described to me a varied educational background; would you please describe that same background to the jury?

A. I have a Bachelor of Science from Georgia Tech and a Doctor of Law degree from Emory University in Atlanta, and I have completed my doctoral work in economics at the Georgia State University and I have done graduate work and research at New York University of Law in international law.

Q. State for the jury and the Court, if you could, your work background and emphasize the work background that you have in engineering.

A. I have about 20 year's experience in actual design engineering, broken down into about seven years machine design and about thirteen years construction design. I have - my last fulltime engineering position was with a large consulting firm and I was department head of mechanical engineering, supervising ten or twelve graduate engineers and professional engineers. A great deal of it has been in piping systems, test systems, special systems, special design projects, as well as standard construction projects, industrial construction

projects and commercial construction projects.

Q. Now, this is actual experience in the field?

A. Yes, this is design experience including the liason with the field, the actual installation of the design work and in the machine design, the actual supervision of the assembly, the fastening, the testing, the development of the machinery which is quite often high-speed machinery, and developing considerable arbitrary stresses and creating special problems in fastening.

Q. Now, could you describe for the Court and jury your memberships on any - strike that. Could you describe any professional certifications you might have to the Court and jury?

A. I am a registered professional engineer in the State of Georgia holding mechanical engineering license 6022; and I am a certified manufacturing engineer certified by the Society of Manufacturing Engineers. I'm also a certified safety professional certified by the American Society of Safety Engineers and in co-ordination with the National Safety Council. And I am on the A.S.T. which is American Society of Testing Materials, A.S.T.M.. I'm on the fastening committee of that society.

* * *

Q. Now, Mr. ZINK, I'd like to move from your qualifications to, directly to the area of fasteners and fastening specifications. Now, what type occasion or opportunity

have you had throughout your career to examine the specifications applicable to all different kinds of fasteners?

A. Most of an engineer's job is to take two things that exist and put them together and make a system out of them. Of course, that involves fastening of some type, and I probably reviewed well over a thousand, maybe several thousand, different fastener specifications.

Q. Now, in your review of these specifications for all these fasteners, have you seen a single specification which sets forth any type of warning regarding the allowable bending?

A. No, I have not.

Q. Did you review specific books concerning this before this trial?

A. My company has several libraries. We have my own engineering library; we have a library for technical sales, service and engineering reference library. We also have a library for technical market research which has a great deal of construction, technology and texts and references in that library. And I reviewed approximately a hundred reference texts and publications short time before the trial.

Q. Did you find any warnings or allowable bending moments for fasteners in any of those publications?

A. Only one publication which we have with us, I brought

with me, but in the other hundred or so there was no mention whatsoever.

Q Which publication is this?

A. A machine design text.

Q. And do you recall what that said concerning fasteners?

A. Yes, it said that fasteners should be used for tensile and shear only and bending stress should be reduced to a minimum.

Q. Is this the book to which you refer?

A. Yes.

Q. Machine Design by Mr. BLACK?

A. Yes, this is my book, my personal book.

Q. Do you recognize that book as authorative in that field?

A. Yes, it's a text, McGraw-Hill textbook used in universities.

Q. Could you refer to that portion of the book to which you referred to in the testimony and perhaps read it to the jury if it's not long?

A. It's not very long. Fastening should be located and placed so that they will be subjected to tensile and/or shear loads and bending of the fastening should be reduced to a minimum.

Q. Is this typical of the technical literature on the subject of fasteners on that particular subject?

A. Machine design?

Q. Yes.

A. I wouldn't say it's atypical: I was not surprised to

see it there; I expected it.

Q. Now, you indicated that in all of this review of literature that you have found no warnings for allowable bending. Why, why aren't they there?

A. Well, in construction and use of a fastener in construction, there is always a concern about stresses that are not static, not just one stress.

Q. Static?

A. Static stress; in other words, something completely immovable.

Q. That's what you mean by the word static?

A. Static, yeah, that is never changes. Well, this does not happen in real life so we have what we call in the construction design, fastening design, preloading of any threaded fasteners especia..ly, but all fasteners, and may I use the blackboard because it's difficult to explain?

Q. Sure. Could you continue on the blackboard your explaination of why these warnings of allowable bending moments don't exist?

A. (At the blackboard, drawing. Can all the jury see it?

(MEMBERS OF THE JURY NODDING AND SAYING YES)

A. I'm going to leave out the washers and other parts might become a part of the other fastening connectio.. Just to simplify. There's nothing - a bolt going through a hole and two pieces of metal plate for

example, with a nut on the end, and you're tightening it up and you're holding two pieces of metal together. Well, one of the things that is dangerous in construction fastening that engineers look out for is fatigue, because these buildings are intended to stay up for many, many years and want to make sure that changes in temperature or changes in the settling of the building or any vibration does not injure the fastener. And the fastener and all materials, especially hard materials, are subject to fatigue, which is an engineering as well as a general term. And it means if you cycle a fastener back and forth, push it and pull it and push it, you will fail the fastener. And this is true of all of the exotic materials as well as some of the more common fastening materials.

* * *

Q. I think that you might have been well on the way to answering my next question, and that question is simply, how does a construction fastener work?

A. A fastener is to draw two things up close together and hold them there. That's the purpose of a fastener. In construction, the heavy beams in a building take the bending; that's what they're there for, that's why they're as thick as they are. That's why you see these giant 24 inch beams because they have to take bending and you've got to be very big to take bending stresses 'cause they're very powerful and the fasteners are small and they can't take those bending moments that beams do.

Q. Now, could a HILTI stud that we've been discussing through this trial be used to hang pipe?

A. Oh, yes.

Q. For example, a Herb Henkel design?

A. Yes.

Q. And other designs?

A. Oh, yes.

Q. Could it be used to hang pipe actually in conjunction with HILTI's own adaptor?

A. Oh, sure.

Q. Let's look at the Unistrut catalog, the same page to which Mr. COUTURE referred. Does this adaptor fit

the fittings that are shown there?

A. Yes, these fittings are 3/8's diameter, holes in them, threaded holes in them, and the HILTI fastener only has a quarter inch thread. And so in order to use one of these full fittings, or with a trapeze in it such as that one, you would have to use an adaptor or some sort to go from a quarter inch thread to three eighths inch thread in ord r to use these fittings.

Now, well, for instance, the word trapeze is just what it says: a trapeze is something that swings. And a trapeze, well, it's not a trapeze, it doesn't swing, so a trapeze, a pipe support, has swivel fittings and that's what makes it a trapeze. And in order to use these swivel fittings you'd need to use the adaptor with the HILTI stud.

Q. And those fittings are exactly what you called them, swivel fittings?

A. Yes, swivel hangers, fittings.

Q. Those fittings actually make this into a trapeze of sorts?

A. (inaudible)..you have to have some sort of, something to let it swing in order to be a trapeze.

Q. I'm glad you pointed that out. Trapeze is not quite the right word we've been using here...(simultaneous voices)

A. No, because this is not a trapeze and...

Q. It's a trapeze frozen in one place?

A. Trapeze frozen in one place, yes.

Q. Let me see. Do you recall this exhibit, Defendant's "F" in evidence, that Dr. McLAY identified as a fastening bolt?

A. Yes, it's a machine screw.

Q. Now, how does the HILTI pin - would you say that is more or less an ordinary bolt there?

A. I know it is. I bought it myself.

Q. Now, how does a HILTI pin compare with that and other ordinary bolts?

A. Very similar. It's just a, this is a, what we call a number ten twenty-four threaded machine screw and the diameter is about the same as a HILTI pin which is a hundred forty-five thousandths or about one seventh of an inch. And this is just a common ordinary bolt you buy in a hardware store and a construction supply house. It's ten, ten carbon steel and ASTN-307 which is an engineering term for what it is, but to you and me, it's a same bolt you find when you go out to buy a little package of bolts hanging on the rack in a local store. Sometimes now we find them in grocery stores as well. But this is the, I guess 99 of 100 bolts are just like this, same material and they have the same characteristics as our fastener. In other words,

they break if they're bent, if you try to bend this it will break.

Q. How do you know that?

A. Well, I guess when I was five years old and I got my first erector set it's the same bolt that was in that erector set, and I've grown up with these things, all my life I've put things together with them and I've broken them off and on for different reasons.

I can remember in a machine assembly if the bolt were too long, we'd just take it and snap off part of it to whatever length we wanted to and then clean the threads up and we'd have what bolt length we wanted to use.

Q. Now, you purchased that bolt right here in Brattleboro, Vermont, correct?

A. Half a block down at the hardware store.

Q. As you were leaving the hardware store, did anybody give you any warnings not to bend that bolt?

A. No.

Q. Was there anything on the package that the bolt might have come in that said don't bend this bolt?

A. No. A construction supply house and in hardware stores, they're in bins, these sort of bins and boxes they pull out of the rack and you say you want a certain size or you want to do something with it and they go to pull out and just grab a handful and sell you a dozen and that's the way

they're sold and that's all the information that you get when you buy one.

Q. You could conceivably use that anyway you wanted?

A. Oh, sure, it's a fastener. Well, you use fasteners to fasten things together.

Q. Now, as a matter of tension, could you give the jury an idea how much weight that bolt would hold in the air?

A. (No response).

Q. If, for example, it were used to go through a beam and go straight down, roughly how much weight would it hold?

A. You mean before it failed?

Q. The same sort of tension, an estimate of the same sort of tension specification like a HILTI specification?

A. About one thousand five hundred pounds.

Q. About nine hundred pounds less than the HILTI?

A. It's hard to say. The HILTI...(interrupted).

Q. You're just estimating this?

A. Well, no, I'm calculating in my head. You see, this is about, this could be ultimate of around anywhere - it's not that closely controlled, but it could be 60 to 90 thousand pounds PSI ultimate strength, and this is about a 60 at the square inch and so you're getting about fifteen hundred pounds per square inch - I mean, per fifteen hundred pounds would probably....

Q. This could break it?

A. It could be as much as two thousand, could be as little as one thousand, which is pretty strong.

Q. Now, despite the fact that the bolt will actually suspend that much weight, does it still break more or less as easily as the HILTI stud?

A. Oh, yes. In fact it could be easier.

* * *

Q. Now, do any of these other manufacturers which you've listed make any warning for allowable bending?

A. No, they don't.

Q. Would it be fair to say they do not make that warning because bending simply isn't allowed?

A. It's not allowed nor would anyone do it; it's just.....

Q. Now looking at the trapeze rig and assuming that a 35-pound pushing, sliding or whatever force is placed down here at the end of the lever or moment arm, have you had the opportunity to calculate the amount of stress that that would place on the one-sixth inch shank of this stud?

A. Yes.

Q. Could you briefly describe how that calculation is made without getting too technical and then give us the result of your calculation?

A. Well, any item that you put into bending, cut a bend, will tend it, to pull apart at the top of the fastener and push together the bottom. And so that every similar shape has a certain characteristic that resists that type of force, that bending force. And the calculation is rather complicated; it can be done fairly quickly, but what you're trying to figure out is what is the maximum stress that that fastener will see when you bend it because if it exceeds the strength of the fastener at any point inside the fastener body, then it will fail, if it goes beyond the yield point which means it will not return to its original

shape when you let it go, and this bolt on the masonry nail went beyond the yield point when I bent them; it's very easy to do, so you calculate how much stress will occur by taking the length of the moment arm, in other words, how far from the beam to where you're pushing, and the force.

Q. Thirty-five pounds?

A. Thirty-five pounds, and you say, this force acting over this moment arm, how much maximum stress will occur in a little piece of round fastener down at the beam, and this is the way I've calculated.

Q. Let me make an interjection; was it necessary for you in any way to know the material of which the fastener was made to make that calculation?

A. No.

Q. You could make that calculation if it was a masonry nail , for the bolt and for the HILTI pin without knowing what it was made?

A. Yes.

Q. Could you tell us what forces or the amount of force that is created at the shank of the pin when 35 pounds of pressure is applied at the end of the AHU?

A. Around nine hundred and ninety thousand pounds per square inch.

Q. Merely (inaudible)

A. Yes.

* * *

Q. Now, the rod, the 3/8 inch rod, could you compare the

bending strength of that rod with the 1/6 inch shank?

A. Yes, the bending strength of that rod is about eight times the bending strength of the pin.

* * *

Q. Here's Sweets catalog, which is "B-1" in evidence; have you had the opportunity to review that?

A. Oh, yes, well, this is a catalog I've used quite a

few times in the past.

Q. How is that catalog generally used in the industry?

A. (No response).

Q. Well, first, let me take that back; what does that catalog show, and from that...

A. The catalog is a collection of information sheets from fastener manufacturers.

Q. Be a little more descriptive; what type of information is contained in there?

A. Information that the engineer or design engineer would use to apply the fastener in construction.

Q. Are there many different types of fasteners particularly in that book?

A. Oh, yes. There are about, I would say couple hundred manufacturers and maybe seventy-five to a hundred different types of fasteners.

Q. In going through that book, were you able to find any warnings or charts of allowable bending stresses applicable to any of those fasteners?

A. No, no allowable bending moments.

Q. Or warnings regarding bending?

A. No warnings in regard to bending, no. I'm sorry, did you ask me about what the catalog itself or...

Q. I don't know.

A. I don't know if I'd answered your question.

Q. Generally, how is that used in the industry by the people who have it; what's it for, what's it do, why does it

exist?

A. In every architect's office and in every construction engineer's office is a collection of, it varies, but between eleven to twenty volumes called Sweets. And this is a service that provides a collection of the information from the manufacturers so that the engineer can go to the Sweets catalog file and look up the information for the product so he will know how to use it and its design. And the manufacturer tries to provide the information as best he can that will be needed by the engineer because obviously if the engineer believes that one fastening manufacturer provides more information that he could use, he will tend to turn to that particular catalog sheet and specify that manufacturer.

* * *

Q. And there are no warnings concerning bending?

A. No.

Q. And again, is that simply because people in the industry know you don't bend a fastener?

A. Yes.

Q. Now, are you familiar with the pipe hanger catalogs that

we have marked Defendant's "B" and "B-2", Steel City Kindorf, and Grinell?

A. Yes.

Q. Now, how are they used in the field by the people who are in the business of actually doing the job?

A. Well, in order for the contractor to not have to engineer in the field, in order that he will be able to use something that has been proven safe, the engineer will specify a brand series of products for a particular application. And the manufacturer of those products has, specializes in those types of products, and it has charts in the catalogs to show to use, what size you need or what size with what size beam or what size pipe, and it takes the decision making out of the hands of the contractor. And this is a, generally considered to be a safe way of putting up a building to specify things that are readily available to the contractor.

Q. And that work?

A. Well, this is part of the same readily available to the contractor that will provide both performance and safety, because if something is specified by the engineer that is not safe, then he can be held liable in case somebody is injured.

Q. Let's get back into that a moment from the point of view of (inaudible); we've heard some talk about registered professional engineers specifications and the right

of the contractor to change them; what could you say about that?

A. Um.....

Q. What is the function of the registered professional engineer and why is he drafting the specifications?

A. The growth of buildings and skyscrapers and complex structures and heavy piping systems and things that might fall on people or might burn up, have led society to try and make sure that the professional people/are that involved in construction are qualified. We have done this in medicine; we have required doctors to be licensed; and lawyers, and we par engineers to be licensed in each state in the United States.

In order to be licensed, he has to have many years of professional responsible supervision of projects; he has to take exams, very detailed examinations in engineering principles and in applications, and he has to be a graduate of a technical school. And in addition, he takes these examinations in his specialty which could be electronics structural or mechanical, but there is a lot of overlap. And this is public policy; the idea being that when an engineer puts a stamp on a drawing he's saying that I...(interrupted)

Q. Or specifications?

A. Or specifications; the plans and specifications, that

this assures the public that nobody's going to get hurt because somebody who understands engineering principles and applications has reviewed the design and by putting his stamp on it, he's saying I represent the public because I have been licensed by the public to stamp these drawings and I certify that they are safe. He puts his stamp on the drawing. This is for the same reasons we have required other professions to be licensed.

Q. Have we, the public, given a construction superintendent such a stamp?

A. No, in fact, the law of each state requires an engineer to have an engineering, professional engineering license before he can design any structure or any apparatus where if it fails somebody could get hurt. It is unlawful for anybody but a registered engineer to create such a design and use it.

Q. Now, we've talked quite a bit about your background, quite a bit about fastening; let's talk a moment about HILTI itself. Could you for the Court and jury, generally describe HILTI, what it does and how it operates?

A. HILTI's line of products could be divided into two major categories; powder actuated fasteners and tools and the concrete drilling and anchoring. Now, this - we're in commercial and industrial construction, heavy building. We don't get into the residential

market because we're working in steel and concrete, very dense materials, very hard and dense materials, and we don't work with wood; our products aren't used for wood in general, and we sell on the jobsite; we do not sell to distributors; we have some distributors but our past type of selling has been with a little red van says HILTI in white letters on it, and he goes to the jobsites where the construction's going on, the HILTI salesman, and where they are not familiar with powder actuated tools, he teaches them to use the tool, how you operate it, because it uses an explosive charge, and if the operator is not trained to use the tool, then it, he might hurt himself.

Now, some states require what they call an operator's card that certifies that the operator be trained, in the use of a tool, and he carries that card with him, and the state requires him to have that card. So our salesman trained the men on the jobsite to use the tool. They also have applications bulletins so that if the contractor has a problem, the salesman will discuss the problem with the contractor and see if that problem can be solved using our fastening systems.

Now, if the problem can be solved using our fastening systems and it's something that's very common, then the contractor will take that

back to the engineer for approval if it's a change in the specifications. If it's something very simple that is not in the specifications such as just fastening down a, what we call a plate construction, just fastening a "sole" plate or a floor plate or partition piece directly to concrete, then it might be in the specifications and there is no possibility of injury to anyone, then the contractor can go ahead and use the system without the engineer's approval so long as there's no possibility of anyone being hurt.

If the problem is not one that is a standard application, if there is a special kind of problem, one that we, that he's not familiar with, has not been exposed to and has not been trained in, we have a staff, full staff of engineers at headquarters who do nothing but work in special applications. And these are graduate engineers and they develop with the information from the contractor a solution, if it can be done safely, with powder-actuated fasteners, they develop a system and if it's, again if the, if it's in the specifi - if it's a change in the specifications in the drawing, the contractor then takes it back to the architect, and the construction engineer says to the architect I would like to use this; will you approve it as being safe for this application? And so this

engineering service is something that HILTI has made available to the construction market ever since we've been in business, and this is one reason why we have run it because we offer these engineering services and the competitors do not.

However, if someone were to just - we have purchasing agents for instance. If our salesman goes, gets a phone call from a contractor and he says see Mr. JONES and Mr. JONES is the purchasing agent, and the purchasing agent says I've got a request here for ten boxes of this and five boxes of this and all of these things are ordered right out of the catalog. Then of course, the salesman is in the same position as anyone else, any other salesman seeing a purchasing agent.

MR. BRYAN: Your Honor, I've kind of forgotten what the pending question is.

A. How does HILTI operate, I think.

THE COURT: Well, it was quite a while ago.

MR. BRYAN: I think maybe we ought to have some questions in between.

THE COURT: Yes. I think the examination of this witness should proceed on by proper interrogatories by counsel rather than a long narrative, Mr. SAXER.

Q. Does HILTI have any other involvement besides just the

powder-activated tool in the construction industry?

A. Oh, yes. As I mentioned, concrete drilling and anchoring; we furnish...(interrupted)

Q. Let me ask you a question, I think, let me interrupt a minute, and we'll come back to that before I forget what you've just said about engineering services. Is a charge made for these people to ask for them or given on an ask, you shall receive basis?

A. They're given, there's no engineer charge, no.

Q. If in fact Mr. HUVA did consult Mr. SMITH and if in fact Mr. SMITH did tell Mr. HUVA to do that, which he did not, Mr. SMITH's judgment would be no substitute for Mr. COUTURE's judgment on the specifications, would it?

A. It's not allowable; I mean it's illegal to do that.

Q. Even if we assist in an application in the field, it's still, must be taken to the engineer for a safety check, isn't that correct?

A. If there's any possibility of somebody being hurt if it falls down, yes.

Q. And in this type of rig, is there any possibility of somebody being hurt?

A. There's no question.

Q. I guess there isn't. Continue to describe the other aspects of the HILTI operation in a general and brief way.

A. We furnish drilling and anchoring systems for concrete;

we furnish a line of drills called hammer drills, and they drill and hammer at the same time and it makes a hole in the concrete. And then there are various types of anchors you can put into the concrete, anchor which is a piece of a bolt with wedges on one end of it, you put it in the hole and you hammer it, there are various types of anchors, but basically when you get through, you have a hole sticking out of the concrete and you can fasten something to it. Because how else are you going to fasten something to concrete that's very heavy?

Q. To summarize, the company is widely involved in the manufacture and sales of many different types of construction fasteners, is that correct?

A. Yes.

Q. And the tools to use them to install them?

A. Both, and the tools.

(DEFENDANT'S "O" FOR IDENTIFICATION, HILTI QUICK BOLT PAMPHLET, MARKED)

Q. Now, I'm going to show you Defendant's Exhibit "O" and ask you if you could identify what that is?

A. Yes, this is just a brief description of our anchoring bolts.

Q. This isn't a stud or pin like this; that is another part of the product line of bolt section..(simultaneous voices)

A. That's right. These are for loads up to 25 tons in

concrete.

Q. They hold 25 tons of tension force?

A. Yes, and about the same in shear. These are large bolts. They, well, they start at about quarter inch and go up to an inch and a quarter across.

Q. Now, does anything in that brochure warn against bending those bolts?

A. No.

Q. Or the bolt brochures of any other manufacturer?

A. No, none of the bolt manufacturers that have anything in literature except the same things we have, pull-out and shear force.

MR. SAXER: I'd like to offer Defendant's "O" for identification into evidence.

MR. BRYAN: Your Honor, I believe this isn't relevant to the matter at hand; it has to do with concrete, nothing to do with steel and not even anything like the HILTI fasteners. I think I must object to that.

MR. SAXER: I'll withdraw the offer for the purpose of asking one more question, until I've asked one more question.

Q. We've heard much of steel versus concrete in this case, and the steel fastener or the concrete fastener; describe to the jury the differences, if any, between the HILTI steel and concrete fasteners?

A. There's no difference. On some of the steel fasteners, we have a knurling up near the edge.

Q. What is a knurling?

A. A knurling is just a kind of herringbone U-print on the steel which has no affect really on the performance of the pin except in very unusual circumstances. The pin itself, there's no difference; the metallurgy and the characteristics, the shape. To make it a simple answer to that question, the man on the jobsite, the man that uses the HILTI tool can use the pin in either steel or concrete. And he does; he will use a shorter pin in steel in general, but that is not always true, but it's the same thing.

Q. Nothing should suggest, should it, that a concrete pin will break less easy than a steel pin?

A. It's the same thing. There's no change in the breaking strength.

MR. SAXER: I renew the offer of Defendant's "O".

MR. BRYAN: Again, Your Honor, if the Court would like to take a look at it; it has nothing to do with the, any of the exhibits or facts in this case.

THE COURT: We'll give you that opportunity.

MR. BRYAN: I beg your pardon, sir?

THE COURT: We'll give you that opportunity to look at Defendant's....

MR. BRYAN: I've seen it. I said

if the Court would like to look at it.

THE COURT: No, I don't care about looking at it.

MR. BRYAN: It is, I think, completely irrelevant.

THE COURT: Well, we'll receive it.

Q. There are, in any event, no warnings of any kind in regard to bending in any of the HILTI, literature that HILTI puts out for any type of fastener, is that correct?

A. That's right, or anybody.

Q. And you, in doing so, join the rest of the world in that regard, no one else does?

A. That's right.

Q. Now, could you give the Court and the jury an idea of the extent of the use of the particular studs and pins that are used in the powder-activated tool as opposed to the bolt line in the United States; what amount of usage would you have?

A. We are selling around 120 million of these per year, about a hundred twenty million.

Q. How long has the company been doing business in the United States?

A. About sixteen years.

Q. Could you estimate the total number of powder-activated fasteners, steel or concrete studs, or pins they've

sold?

A. Over half a billion or in place in the United States.

Q. Now, are you familiar with the record of the company with regard to any fastener failures?

A. Yes.

Q. And describe how your company would receive information concerning the failure of fasteners or any other of its products for that matter?

A. Well, we're in a fortunate position there because by selling directly on the jobsite, we have our salesman or each man has his own territory and he's familiar with his customers, so that he receives an on-the-spot information that something's happened or something failed and didn't work. It's not as if we were selling to a store. So these reports all come back to me or to the engineers, my engineers, or to - depending on the type of question that's arisen, but we have very full reporting because of this, because our men are right there.

Q. In the sale of half a billion fasteners, have you ever received a report, other than this one, of failure in a bending load?

A. Never.

Q. Could you tell us why?

A. I'm sorry.

Q. Could you give the jury an idea why no such report has

ever been received?

A. Because they're not used for bending, and no one expects them to be.

* * *

Q. Now, counsel also asked Dr. McLAY as if he had an opinion as to whether this use was foreseeable by our company and Dr. McLAY certainly had an opinion. He said, yes, it was foreseeable. Do you have an opinion on the same subject?

A. Yes.

Q. What is your opinion?

A. This is not receivable use of either the HILTI pin or any other fastener.

Q. Dr. McLAY didn't explain why. He gave his opinion. Would you explain why you're giving yours?

A. Yes, I explained earlier that fasteners used to pull two things together; that is the customary use

of a fastener. It's our experience in the company that that has always been the use of our fasteners; it's the only use we teach; it's the only use we know of; it's the only use our customers know of, and because of this, we would never foresee something like that, someone making a rigid, rigid - I don't know what they call it, to take what would have been a trapeze and make it into a rigid design. We would never expect that to happen.

Q. In the sale of one half a billion units?

A. That's right.

* * *

Q. Now, you went to work for HILTI at what time, in what year?

A. In 1971.

Q. Now that was after the accident then that we're involved in here, is that correct?

A. Yes.

Q. And so at the time of this accident, you had no connection with HILTI whatsoever?

A. That's true.

* * *

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A. The question is what was my position six months after

I began with the company?

Q. Right.

A. My title was General Counsel.

Q. Okay, and has it remained the same since?

A. Yes.

Q. The title?

A. Yes.

Q. Now, have your duties changed since?

A. The duties; the duties have been the same since I began with the company as far as the general job description, have been the same since before I came with the company right up to this moment. They've not changed as far as described in my job description and what it was intended I should do for the company; nothing's changed.

* * *

Q. Okay, then continue then; what else do you do?

A. I handle all the product accident reports of the company. Any time something falls down or somebody's injured or a product fails or a connection fails, or anything like that, is reported directly

to me from the field.

* * *

Q. Now, I believe you testified that you have never seen a warning against bending as to a fastener, is that correct, in the industry?

A. That's right, in the machine design construction industry which is my field and background.

* * *

Q. I take it a lot of your work has to do with materials such as what you find in this Grinnell catalog?

A. You mean fixtures?

Q. Uh huh.

A. Yes.

Q. And you're intimately familiar with catalogs and the

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various materials that are sold throughout the industry by different manufacturers?

A. Which industry are you referring to?

Q. Well, pipe industry, machine industry, that sort of thing?

A. (No response).

Q. Anything anywhere near related to the HILTI Company?

A. Is your question am I intimately related to everything?

Q. Familiar, familiar?

A. Familiar with everything that is related to the company?

Q. Well, it's a bad question, maybe. You're generally familiar with...(simultaneous voices)

A. The Grinnell catalog, yes.

* * *

Q. Go ahead, would you just read it please?

A. Hanger rods shall be subject to tensile loading only. At hanger locations or (inaudible) or actual movement is anticipated suitable linkage shall be provided to permit swing.

Q. That's a warning against bending force, is it not, sir? Yes or no?

A. Is it a bending against bending force?

Q. Yes or no?

A. Let me see what it has reference to the question.

Q. The question.....

MR. SAXER: The question related to bending, warnings in bending forces for fasteners, if I understood what the catalog said. They were not talking about a fastener.

THE COURT: Well, very well.

A. Well, it's referenced to hanger rods and the question is is it a warning against bending, shall be provided to permit swing. I think it can be inferred to be a

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warning against subjecting a hanging rod to bending.

Q. Yeah, I agree.

A. I, if you ask if that is a fastener, I'd... (interrupted).

Q. You've answered the question, sir. You spoke about, some time about the bolt. I think there's an exhibit now that consists of a broken bolt, two exhibits perhaps. And I believe you testified that you've been familiar with objects like that since you were about five years old, right?

A. Yes, sir.

Q. Now, wouldn't you agree with me when it, that it is fair to say that precious few of us in this room right now have had no experience with objects like that?

A. I think you've got a double negative here.

Q. I think it was understandable, but would you agree that there are very few of us in this room, if any, who have not had some experience with a bolt like that?

A. Experience, I would agree, yes, sir.

Q. Would you agree?

A. Experience with a plain old bolt and a nut? Yes.

Q. You would agree?

A. Yes.

Q. Practically everyone, man, woman, child, that may be in this room, has probably seen one of those, maybe

had something to do with it?

A. Yes.

Q. When was the first date that you ever saw a HILTI fastener and had occasion to break one within your life?

A. The first time I had occasion to break a HILTI fastener?

Q. Yeah, how old were you?

A. I would say I was thirty-eight years old.

Q. When did you last break a HILTI fastener?

A. Well, I'm forty; two years ago.

Q. When?

A. About two years ago.

* * *

HERMAN ... VERMONT

Q. There's no question that that material in the fastener is a lot harder than the material in the bolt, isn't it?

A. The material - well, you can't really make that statement because it's, the material in both of them varies from the outside to inside, but I'd say in general, if you averaged it, the material would be harder in this pin, but it's mostly harder on the outside because it has to penetrate steel, and the same thing with the bolt because it's cold rolled, formed.

Q. Now, this Exhibit "D", this could be used in an entire substitution for the pin in the adaptor, could it not?

A. (No response)

Q. By just screwing it onto the flange like that?

A. Yes, in that application, uh huh.

Q. And you could hang your whole works on it directly from here in the manner like that, couldn't you?

A. Uh huh.

Q. And would you say that that was the safe application of the, that product there?

A. Are you asking me is that a safe application in what?

Q. As a substitute; in other words, make this hanger and do that?

A. I can't answer that without your giving me the specifics or the primers of the job.

Q. Well, for the same job that we're talking about here. In other words, use this "C" clamp instead of the adaptor and the pin?

A. (No response).

Q. See any reason why that couldn't be used?

A. It could be used. I may not personally recommend it, but it could, I'll say it could be used.

Q. It could be used safely too?

A. Well, it's a relevant thing. That is maybe a hundred times safer than the HILTI pin.

Q. What you're talking about is it's a question of degree, isn't it, in the strength of these two that makes that a safer application than that?

A. It's the strength and the degree against bending, yes, sir.

Q. It's just stiffer, it will just take more than the HILTI pin?

A. Oh, it's eight times stiffer.

Q. How do you know exactly it's eight times?

A. I calculated it.

Q. When?

A. When did I calculate it?

Q. Yeah.

A. Oh, I think sometime between the time that - I calculated it as part of the trial preparation.

Q. When you say it, are you talking about the rod or the "C" clamp?

A. The rod.

Q. The rod, okay.

A. Because I've never seen a "c" clamp break.

Q. Now, how did you - you say you determined the breaking strength of this rod in bending?

A. Yes, sir.

Q. Without knowing the material or did you know the material?

A. I knew the material.

Q. You do know the material?

A. Yes, sir, my committee specifies the materials for those rods.

Q. Okay, so you know the material?

A. Yes, it's ASTM-107.

Q. What's the ASTM number for the HILTI pin?

A. There is no ASTM number for the HILTI pin. We're in the process of building standards for these powder-activated pins.

Well, in answer to his question, there is not an ASTM number for the HILTI pin.

Q. Do you have a number assigned to it of any sort that would tell an engineer how hard it is?

A. Oh, sure, the hardness is no secret.

Q. Where is....

A. The hardness is fifty-two fifty Rockwell C. (Simultaneous voices). I'm sorry, I'm going too quickly. 52-50 Rockwell C.

Q. And where is that published in your general literature to the engineers?

A. I don't know. I think it's published; it's no secret, I'm not sure - an engineer would - this is not a trade secret or anything. I'm not sure.... (interrupted)

Q. I'm not asking you whether it's a trade secret; I'm asking you if an engineer is confronted with one of your fasteners and they want to know the breaking strength and they want to compute....

MR. SAXER: Your Honor, I object to the thrust of the questioning; an engineer here is not confronted with one of our fasteners; the construction superintendent was.

THE COURT: We'll allow the question.

MR. BRYAN: Ted, would you strike the question please?

THE REPORTER: I'd be happy to.

Q. If an engineer...

A. Yes.

Q. Decided he would like to compute the breaking strength of one of the fasteners, to what manual or handbook

would he turn to get the material specifications?

A. It would depend upon the breaking mode he was anticipating.

Q. Well, let's say tension strength?

A. Tension strength is published in our charts and our salesmen have those.

Q. That's what Hans HUVA saw, right?

A. Yes.

Q. Now, suppose he wanted to calculate the bending strength?

A. I've never had an engineer want to do that in the history of our.....(interrupted)

Q. I didn't ask you that, if you ever had an engineer.....

A. Okay. I didn't know what he did. I haven't the foggiest idea because I don't even know why he'd want to.

Q. Is your answer that you don't know?

A. Where he'd turn to?

Q. Uh huh.

A. He would turn to us and he would call us and say I need some information in order to calculate the breaking strength.

Q. Thank you. Now, what you told me after several questions, I think, is that you do not publish it anywheres, is that correct?

A. Publish what?

Q. The information on the specs of the material so that an

engineer can calculate the breaking strength?

A. That's right.

Q. Thank you. Good, good, good.

A. Breaking strength, again you're referring to bending, allowable moment?

Q. Yes.

A. Because that's.....

Q. Is that the same with respect to the torque necessary to break the bolt if he wanted to find out what the breaking strength would be of the bolt by torquing it, that is fastener?

A. Yes, he would call the manufacturer or..(simultaneous voices).

Q. Now.....

A. Or he would ask the salesman and the salesman would communicate the question.

Q. You say that generally speaking, in materials of this kind and fasteners, the bending moments are not published because it's an industry wide practice never to exert bending loads on structures of the kind that you see here in this.....

A. No, sir, I didn't say that.

Q. ...exhibit. What did you say?

A. I said that the, for fasteners that allowable bending on a fastener is not published because one does not design or expect a fastener to accept a bending load.

Q. Now, a fastener really is just, in many cases, just a shaft of steel, isn't it?

A. Well, I'll admit that if you take a broad definition you can include the beams of a building, or concrete is a fastener; it's holding, connecting two things; I can't quarrel with that.

Q. In fact, you can make a fastener out of this 3/8 rod by simply taking two bolts, cutting this off to any desired length and you have a bolt and you have a fastener, don't you?

A. Well, if you used it as a fastener you'd have a fastener, that's right. If you decided to use it in bending, you wouldn't have a fastener, you'd have something that's designed for a structural....

Q. Couldn't you make a bolt out of that very easily?

A. Make a bolt?

Q. Yes.

A. I would say so, yes.

Q. Very easy?

A. Uh huh.

Q. Just put a bolt here, bolt here, and you've got a bolt, right? - A nut here, a nut here and you've got a bolt?

A. Not until you use it as a fastener.

Q. But it is a material that is common enough that it could be fabricated very easily by an ordinary man as a fastener, couldn't it?

A. Yes.

Q. In fact it wouldn't...(interrupted)

A. I've done it myself.

Q. In fact it wouldn't be unreasonable at all for somebody to take a piece of rod like that and cut it up and make fasteners out of it, would it?

A. I'd say it's the expensive way to go about it, but if you wanted to do it, you could.

Q. In fact, you say you've done it yourself?

A. Yes.

Q. And this is the general kind of stuff that is lying around contractors' jobs all the time for various reasons?

A. It's known as threaded "throw rod". I assume that's what it is unless it's something special that I'm not familiar with. In general, 99 out of a 100 times it's threaded "throw rod".

Q. It's a common item; there's nothing unusual about it?

A. Yes, common.

Q. In fact would you say it's almost as common, at least in the construction sense, that is of the people who are in business as opposed to the husband and wife and his family in the home, it's at least as common as the average bolt on the construction site?

A. Oh, no.

Q. Well, it's equally familiar to everyone on the construction site?

A. No, I wouldn't say that, sir, no.

Q. Well, wouldn't you...(interrupted)

A. That's threaded "throw rod"; that's, it's not customary for a contractor to jerry rig something on a site using threaded "throw rod"; it's more for machine shop.

Q. Well, they use it in many, many different kinds of applications, don't they?

A. Threaded "roll rod"?

Q. Yes.

A. In lengths such as this, I would say so, yes.

Q. Sure. The plumbing industry uses it extensively, do they not?

A. Extensively? It's not unfamiliar to me.

Q. Defendant's Exhibit "L" is part of a book entitled "Unistrut"; that's the Unistrut catalog I believe you identified?

A. No, sir, that was the other engineer identified.

Q. Okay, then I've forgotten. You've seen this?

A. Oh, yes.

Q. You're familiar with it?

A. Generally, yes.

MR. BRYAN: Defendant's Exhibit is a one-page and if I could, Your Honor, I'd like to mark the whole book and use that as an exhibit.

MR. SAXER: The defendant agrees that the whole book may be marked and placed in evidence.

MR. BRYAN: Okay, use it as "L" and just mark it on the outside?

THE COURT: Yes.

MR. SAXER: I would like to leave the particular page that we put in evidence.....

THE COURT: All right, mark the whole book as "L" and the page as "L-1". We'll leave it that way.

MR. BRYAN: May I offer this?

MR. SAXER: I have no objection.

Q. Mr. ZINK,.....(interrupted)

THE COURT: Defendant's "L" may be received as a total.....

Q. I'm sorry, I got ahead of myself. Mr. ZINK, I show you Defendant's "L", I guess it's Defendant's "L" and this, is it not, is the catalog of the Unistrut people with all different kinds of materials in it?

A. Uh huh.

Q. Is that right?

A. Yes.

Q. You've seen it before?

A. Yes.

Q. And in fact they sell in this catalog somewhere that 3/8's rod, don't they?

A. They could. I'm sure they charge a little more for it if they did.

Q. Well, I can't find it in here but I'm sure it's in here.

A. Well, I'm not sure - I'm not sure that they do sell it but I don't know.

Q. Well, I can take the time later because I thought I saw it earlier, but I'd like you to turn to page 141 and I would like for you to tell me what the words at the top say?

A. Pipe Movemant Data, Reference Tables and Data.

Q. And it says Pipe Movement Data, doesn't it?

A. Uh huh, yes.

Q. Would you read that sentence please slowly, the top sentence?

A. The affect of bending stresses set up in hanger rods which are fixed rigidly at one end is subjected to lateral movements at the hinged end.

Q. Now, do you see a diagram here?

A. Oh, yes, I'm familiar with the diagram.

Q. Would you, I'd like you to step up to the board, so the jury can follow along, I'd like you to just put that diagram on the board?

A. (Doing so).

Q. I'll put it on, turn it around both ways, wide panorama.

A. (Drawing on the blackboard).

Q. Okay, have you done so?

A. Yes.

Q. Take your seat again please?

A. (Doing so).

Q. This distance in here is designated a..(inaudible).. for movement?

A. Yes. I didn't put that in on, that's distance.

Q. And this is a hinged section here?

A. Yes, I believe so, yes.

Q. Because this portion here is clamped to something like a pipe here, right?

A. Uh huh.

Q. And this is intended to be, from that diagram, a piece of that rod that is fixed up here?

A. I promised I'd pull it around a little bit.

Q. Oh, I'm sorry. Okay, it's a piece of rod, is it not, the same stuff I was just talking about?

A. Well, yes, essentially, it's hot-rolled here, but it's essentially the same.

Q. Now, would you please read this, and underneath it there's a big table, isn't there?

A. Yes.

Q. In fact if we could, just hold it up, would you hold it up to the jury and just show the jury the table?

A. Table.

Q. Now, does it have numbers all over the table?

A. Yes.

Q. And in fact what does this left-hand column say?

A. It gives the length, A, from the, we call it a beam I guess, down to the hinge.

Q. The length from where the rod is fixed....(interrupted)

A. Yes.

Q. ...up here, to where it is onto the pipe, right?

A. Yes, uh huh.

Q. Okay, and what are the numbers that go out to the right?

A. Starting right after "A" we have the diameter of the rod, and then we have the distance, "M", that I didn't draw between that vertical line and the pipe clamp; and then in various columns, well, we have different distances for "M", starting with the zero, 1/8, 1/4, 1/2 inch, and then we have the safe load range in pounds, which is, according to the second paragraph up here, the maximum vertical load that that arrangement will sustain.

Q. Now, would you please read the sentence that's underneath the diagram slowly so the reporter can get...(mumbling)

A. Uh huh. Allowable vertical hanger loads on threaded hot-rolled rods for various lateral displacements based on allowable combined stresses in conformance with paragraph 607, American Stain Code for Pressure Piping, 1955.

Q. Okay, and would you read the note down at the bottom please?

A. The shaded area of the above table indicates where the use of a Unistrut M-27 swivel nut would provide/safe support of a load without severely bending the hanger rod. It also indicates where a rigid connection should not be used.

Q. Okay, now, this is nothing more or less than, nor less, is it sir, than a table as to allowable bending moments to be applied to a piece of rod like that?

A. No, sir.

Q. Yes or no?

A. No.

Q. Why not?

A. That table is the allowable vertical load on that fastener and that displacement.

Q. Right....

A. It's not the allowable bending load, no, on the hanger.

Q. But it gives you the same thing, doesn't it?

A. No, sir.

Q. Well, it tells you what weight you can hold if there's any bending to it?

A. That's right. It tells you what the vertical weight can be on that displacement.

Q. If there's any bending?

A. No, sir. It gives you, if it is what it purports to be, it says if you have that distance, "A", and if you have that distance "M", and that is a configuration, it lists the weights that can be placed on that configuration.

Q. And it stands to reason that anything such as a rod or a fastener, if you apply very little.....(interrupted)

MR. SAXER: Did you say or fastener?

Q. Or fastener, I said. If you apply very little bending load, you can carry some weight with it, but the more you increase the bending, the less weight it's safe to put on it; isn't that right?

A. Are you saying that's what the table says?

Q. No, I'm saying isn't that correct, what I just said?

A. Saying the more you bend something the more, the less weight you can place upon it?

Q. In vertical, yes, sir, safely?

A. I would say that's true in general, yes.

Q. Now, just a couple of more questions. I believe you testified on direct examination that your salesmen are instructed that where there is a non-standard application, it must be referred to the engineering department at your company? This would....

A. No, well, I qualified that too. No, sir, I did, at the time I stated that it depends upon whether it's something like putting a piece of board down on linoleum or something like that. It may not be a standard application, but it's not always necessary to refer it. And those, in those cases where there is a possibility of personal injury.

Q. Okay, where there is a possibility of personal injury and it's a non-standard application, the salesman should refer the problem to your engineering department, yes or no?

A. Yes, sir.

Q. Yes, okay. Now, to me this would indicate an assumption that a salesman can recognize a non-standard application when he sees one....(interrupted).

A. If he knows.

Q. My question to you, sir, is: What training are your salesmen given to recognize such a non-standard application?

A. We train our salesmen and in many areas. Now, the training that's given in applications is in general applications. In other words, these are the things that one would generally see, and this training begins the moment he's hired. He is under the custody of a trained HILTI experienced salesman, and he rides with the salesman and he's shown the standard applications. And if he does not, if he gets into, on his own, and sees an application that he has not been taught the standard, or if he has an application that after he gets further training and this is on-going things; these men come back every year or so, about every two years, for further training, and if - it's obvious that salesman, one salesman can know a certain set of applications, and if he's very experienced he can learn more applications, but in either case, if it's something that he's not familiar with, he refers it back to the engineers, if it's not something he knows to be a standard application.

ZINK - cross - Bryan

Q. Let's see if I can figure out the answer to the question that you gave; I take it that the answer that you gave us was that the training such a man got was to go on the truck on a route with another HILTI salesman?

A. That's the initial training.

Q. And then you said that he goes to a school for a couple of years?

A. Yes.

Q. And is it standard practice to turn the salesman out in the field without sending him to school at all?

A. Oh, sure.

Q. It is?

A. Yes.

Q. And I show you here Plaintiff's Exhibit "14" for identification, a letter to Mr. HOFF from Mr. SAXER which we partially read, and indicating the dates Mr. SMITH attended the HILTI training school, August 23 to August 28, 1970, and then July 8 to 13, 1974?

A. Uh huh.

Q. Is that four year's span a normal span in your company?

A. Yes, it is because we're going into a two-year program now. And we haven't had all the fellows back for two years. We're beginning a program - you can't bring everybody in at the same time because you have nobody out in the field, so we have

a lot of fellows out there who span four years.

Q. So you're stepping up the training, is that right?

A. No, we're not stepping up the training. We're, what we're doing now is we're working more in a sales training area as opposed to applications and we're adding that, and that's really why... (inaudible)...and not because of an increase in technical engineering applications.

Q. You're not increasing the technical aspects of the salesman's training?

A. Oh, at some extent, but that's not the reason for the...(simultaneous voices)

Q. Mostly it's for sales so they sell better?

A. Yes. I must explain....(interrupted)

Q. Wait a minute. You've answered the question.

A. Okay.

Q. You've - I think hopefully this will be the last question - I show you here a pin and an adaptor, if I can find a pin, and I ask you if you have a salesman go on a jobsite with these two items, the pin and the adaptor, and he even knows or has a strong suspicion, that a 3/8's rod is going to be used, and he knows that rod's kicking around the jobsite, in fact, he's told something is going to be suspended from overhead.....

MR. SAXER: I object. I object, I believe that to be a mischaracterization of the evidence.

Mr. SMITH said he was told it would be hung. Hung in the business does not necessarily mean suspended overhead.

THE COURT: Well, the jury will have in mind what the evidence from Mr. SMITH was on that point. We'll allow the cross examination to proceed.

Q. If he sells this pin together with this adaptor, a combination, does it really take very much imagination to conjure up the thought that somebody's going to hang something?

A. To hang something?

Q. With this apparatus?

A. No, that's a possibility; rigidly no, but it's quite possible somebody could hang something from it, yes.

Q. Yeah, and it's...(interrupted)

A. Conjured up I think is a good word.

Q. It's not unforeseeable that a man on the jobsite would make a use of an application like that, is it?

A. Well, originally in your question, you said if a man walks on the jobsite bringing that pin and adaptor, these fellows have a van full of thousands of different items, and they sell maybe off that one truck, that one sale, they may sell fifty different things, they may sell one; and, you know what he could conjure up on any given permutation combination of what he sells is pretty speculative.

I do agree that it's possible to

conjure up the fact that somebody could put a 3/8's rod in the adaptor.

Q. And hang something on it?

A. And hang something on it, uh huh.

MR. BRYAN: Your witness.

REDIRECT EXAMINATION BY MR. SAXER:

Q. Well, let's conjure briefly together. You could take this pin and this adaptor and use the fittings that many manufacturers provide to take the bending moment off the fastener, isn't it?

A. Yes.

Q. Now, when you use the word - well, let me put it - suppose this is a wall and suppose I take an electrical junction box and mount it, one, two, three, four; what is the word in the industry to describe what I just did; did I hang it?

A. Yes.

Q. In other words, hanging in the business does not mean something suspended from the ceiling by a rope or anything else?

A. That's right, they hang everything sideways, upside down,..(mumbling)

Q. Now, despite Mr. BRYAN's conjure, is this a fastener?

A. That right there; not unless you pull two things up tight to bring them together.

Q. Is it generally accepted in the industry as a fastener?

A. No, that to anybody in the industry is a piece of

threaded "throw rod". You could use it for, well, you name it.

* * *

AFFIDAVIT OF SERVICE BY MAIL

State of New York)
County of Genesee) ss.:
City of Batavia)

RE: Frank A. Quinlan
v
Hilti, Inc.
Docket No. 75-7514

I, Leslie R. Johnson being duly sworn, say: I am over eighteen years of age and an employee of the Batavia Times Publishing Company, Batavia, New York.

On the 18 day of December, 1975 I mailed 1 copies of a printed Appendix in the above case, in a sealed, postpaid wrapper, to:

Hoff, Curtis, Bryan, Quinn & Jenkins, Esqs.
192 College Street
Burlington, Vermont 05401

at the First Class Post Office in Batavia, New York. The package was mailed Special Delivery at about 4:00 P.M. on said date at the request of:

Philip D. Saxer, Esq.
278 College Street, Burlington, Vermont 05401

Leslie R. Johnson

Sworn to before me this

18 day of December, 1975

Patricia A. Lacey

PATRICIA A. LACEY
NOTARY PUBLIC, State of N.Y., Genesee County
My Commission Expires March 30, 1977